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YASUTAKE

(22)Date of filing : 23.02.2001 (72)Inventor : MAEHARA

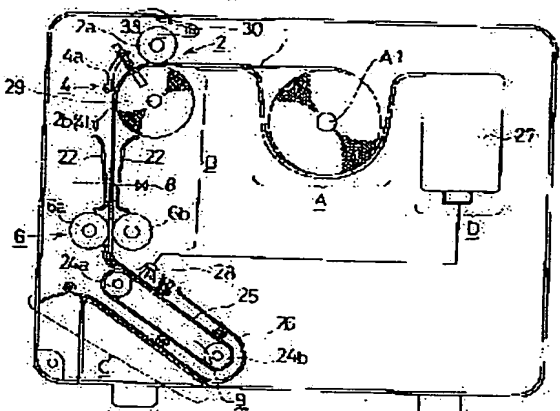
YASUTAKE

(54) PAPER ROLL SUPPLY MECHANISM AND WET TOWEL MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a paper roll supply mechanism being easy to maintain and regulate and facilitating the repack of a paper roll 1, and a wet towel machine.

SOLUTION: When the paper roll 1 having perforations 21 at proper spaces is supplied, the paper roll 1 is supplied at almost the same length as a perforation space L2 and then the supply of the paper roll 1 is stopped by a narrowing means 4 while lower supply means 6 continuously supplies the paper roll 1 after ruptured.



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CLAIMS**[Claim(s)]**

[Claim 1] Hold a roll sheet 1 and centering on the roll axes A1 which are the axial centers of this roll sheet 1 The roll electrode-holder section A with a pivotable roll sheet 1 An upper supply means 2 by which are the roll-sheet feeder style which has the fracture section B which supplies the roll sheet 1 which was located in the lower stream of a river of this roll electrode-holder section, and was fractured, and the - aforementioned fracture section B supplies a roll sheet 1 down-stream, and the bottom supply means 6, Have two *** means 4 which it has the clip section (4a, 4b) to counter on both sides of a roll sheet 1 in between, have the proper cutting part 11 on which the - aforementioned *** means 4 cuts to a roll sheet 1, and fixes its eyes, and it receives in the supply direction of the - roll sheet 1. After allotting in order of the upper supply means 2, the *** means 4, and the bottom supply means 6 and supplying a roll sheet 1 to proper die length at the time of supply of the - roll sheet 1, while said *** means 4 sandwiches a roll sheet 1 and stops the supply What is characterized by having a means by which said bottom supply means 6 continues supply of a roll sheet 1.

[Claim 2] Hold the roll sheet 1 which formed the perforation 21 at proper spacing, and centering on the roll axes A1 which are shafts of the longitudinal direction of this roll sheet 1 The roll electrode-holder section A with a pivotable roll sheet 1 The upper supply means 2 which is a roll-sheet feeder style possessing the fracture section B which supplies the roll sheet 1 of a predetermined dimension, and the - aforementioned fracture section B supplies down-stream on both sides of a roll sheet 1, and the bottom supply means 6, Have a *** means 4 to have the two clip sections (4a, 4b) which counter on both sides of a roll sheet 1, and it receives in the supply direction of the - roll sheet 1. Allot the bottom supply means 6 to the downstream of the upper supply means 2 and the *** means 4 with fixed spacing, and it sets at the time of supply of the - roll sheet 1. After supplying the roll sheet

1 of the perforation spacing L2 of a perforation 21, and abbreviation same die length formed in the roll sheet 1, while stopping supply of a roll sheet 1 from said *** means 4, the bottom supply means 6 is characterized by having the means which continues supply of a roll sheet 1.

[Claim 3] What is the roll-sheet feeder style indicated to claim 2, and is characterized by establishing the *** means 4 between the upper supply means 2 and the bottom supply means 6.

[Claim 4] Are the roll-sheet feeder style indicated to claim 2 or claim 3, and the supply-on - means 2 has upper driving roller 2b and upper presser-foot section 2a which counter on both sides of a roll sheet 1 in between. - The *** means 4 carries out a roll sheet 1 in between, and it has migration clip section 4a in the opposite side of said upper driving roller 2b. - What is characterized by *** (ing) a roll sheet 1 because the aforementioned migration clip section 4a is movable in between the location which touches said upper driving roller 2b, and the locations to leave and presses down a roll sheet 1 to upper driving roller 2b.

[Claim 5] What is characterized by being the roll-sheet feeder style indicated to either claim 2 thru/or claim 4, and forming a sensor 8 between the bottom supply means 6 and the *** means 4, and performing centering control of the point 23 of a roll sheet 1 based on the information from this sensor 8.

[Claim 6] That to which it is the roll-sheet feeder style indicated to either claim 2 thru/or claim 5, and the perforation spacing L2 of the perforation 21 prepared in the roll sheet 1 and spacing L1 of the *** means 4 and the bottom supply means 6 are characterized by being abbreviation identitas.

[Claim 7] The steamed towel machine which has the roll-sheet feeder style and the manufacture means C which were indicated to either claim 1 thru/or claim 6, and the water spray means D.

[Claim 8] What is the steamed towel machine indicated to claim 7, and is characterized by making a roll sheet 1 supply and fracture with the winding roller 9 while the winding roller 9 in the manufacture means C makes bottom driving roller 6b in the bottom supply means 6 serve a double purpose and stops supply of a roll sheet 1 with the *** means 4.

[Claim 9] That to which it is the steamed towel machine indicated to claim 7 or claim 8, and the aforementioned winding roller 9 is characterized by forward reverse rotation being possible [Claim 10] What is characterized by being the roll sheet 1 for steamed towels made from a cotton, and forming the perforation 21 crosswise, and changing the magnitude of the hole of a perforation 21 to the abbreviation symmetry on the basis of the core of a roll sheet 1.

[Claim 11] What it is the roll sheet 1 for steamed towels made from a cotton, and the magnitude of the hole of a perforation 21 was changed to the abbreviation symmetry on the basis of the core of a roll sheet 1, and formed

infeed 71 in the edge of a perforation 21.

[Claim 12] The roll sheet 1 for steamed towels characterized by the spacing L1 of the **** means 4 of the roll-sheet feeder style indicated to either claim 2 thru/ or claim 9 and the bottom supply means 6 and the perforation spacing L2 of a perforation 21 being abbreviation identitates.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the equipment (steamed towel machine) which manufactures the device and steamed towel for supplying a roll sheet.

[0002]

[Description of the Prior Art] There is utility model registration No. 3011567 as a technique of dividing a roll sheet into proper magnitude in the conventional steamed towel machine. On these specifications, as shown in drawing 8, the roll sheet was cut in proper magnitude using "the cutting blade 86." Moreover, there were some which form a rotation roller cutting edge in the outside of the roller which rotates like the utility model registration No. 2018094 as a device in which a roll sheet is cut.

(Trouble 1) The edge of a blade becomes round by use of a fixed period, and it may be able to stop however, might be unable to cut the roll sheet by the device in which a roll sheet is cut using the sharp edge of a blade like before. Therefore, grinding the edge of a blade periodically etc. needed to be maintained periodical.

(Trouble 2) Since the edge of a blade for cutting a roll sheet always needed to be ground keenly, accommodation of a roll-sheet feeder style and a roll sheet repacked it, and it had risk of inflicting an injury on an operator again at the time of an activity.

[0003]

[Problem(s) to be Solved by the Invention] Then, this invention is that a put substitute of that accommodation and roll sheet offers an easy roll-sheet feeder style and a steamed towel machine easily [a maintenance].

[0004]

[The means for solving a technical problem, an operation gestalt, and its effectiveness] As an operation gestalt of this invention, there are a gestalt

using the roll sheet which prepared the perforation, and a gestalt which does not prepare a perforation. Then, the device using the roll sheet which does not prepare a perforation is made into roll-sheet feeder style **, and the device using the roll sheet which prepared the perforation is made into roll-sheet feeder style **.

[0005] (*1. roll-sheet feeder style **: With no perforation 21)

"Hold a roll sheet 1 and centering on the roll axes A1 which are the axial centers of this roll sheet 1 In order that this invention may solve said technical problem, [1] The roll electrode-holder section A with a pivotable roll sheet 1 An upper supply means 2 by which are the roll-sheet feeder style which has the fracture section B which supplies the roll sheet 1 which was located in the lower stream of a river of this roll electrode-holder section, and was fractured, and the - aforementioned fracture section B supplies a roll sheet 1 down-stream, and the bottom supply means 6, Have two **** means 4 which it has the clip section (4a, 4b) to counter on both sides of a roll sheet 1 in between, have the proper cutting part 11 on which the - aforementioned **** means 4 cuts to a roll sheet 1, and fixes its eyes, and it receives in the supply direction of the - roll sheet 1. After allotting in order of the upper supply means 2, the **** means 4, and the bottom supply means 6 and supplying a roll sheet 1 to proper die length at the time of supply of the - roll sheet 1, while said **** means 4 sandwiches a roll sheet 1 and stops the supply It is characterized by having a means by which said bottom supply means 6 continues supply of a roll sheet 1."

[0006] (Effectiveness) After this invention supplies proper die length rather than cuts a roll sheet 1 using a cutter, it prepares sitting in a roll sheet 1 by the cutting part 11 prepared in the **** means 4, and makes a roll sheet 1 fracture on the basis of this sitting. Therefore, it is not necessary to grind keenly the edge of a blade for cutting a roll sheet 1 like an old steamed towel machine, and a maintenance becomes easy. Moreover, the edge of a blade is round and un-arranging of it becoming impossible to cut does not arise.

[0007] Furthermore, not only the roll sheet 1 that is easy to be torn but the burden of bottom driving roller 6b in the bottom supply means which carries out the role which is made that it is easy to make it fracture by preparing sitting even if it is the strong roll sheet 1, and pulls a roll sheet 1 by this can be reduced. Since a sharp cutter is not used, exchange of a roll sheet 1, said maintenance, etc. can carry out to insurance.

[0008] (Configuration) The operation gestalt of this invention is explained with reference to drawing 1. Roll-sheet feeder style ** concerning invention is constituted by the roll holder section A which supplies a roll sheet 1, and the fracture section B which fractures a roll sheet 1.

[0009] (1) "The roll electrode-holder section A" has been the same as that of the configuration which says the part which holds a roll sheet 1 pivotable

centering on the roll axes A1 which are the axial centers of a roll sheet 1, and is used with the conventional facsimile feeder, the steamed towel machine, etc. enough here.

[0010] And in this invention, "a roll sheet 1" means the paper rolled in the shape of a roll, and especially a limit does not have that quality of the material, thickness, etc. Specifically, the roll sheet for steamed towels (the thing made from a cotton is included), a chitin paper, toilet tissue paper, etc. correspond. And that by which the device of arranging the direction of fiber as a roll sheet 1 used for the roll-sheet feeder style which is this invention so that it may be easy to split crosswise is made is desirable.

[0011] (2) "The fracture section B" means the part which supplies the roll sheet 1 which the predetermined dimension was made to fracture, and it is located down-stream from said roll holder section A. And it is constituted by an upper supply means 2 to supply a roll sheet 1 down-stream, and the bottom supply means 6 and a **** means 4 to suspend supply of a roll sheet 1 compulsorily.

[0012] (2-1) "Upper supply means 2"

"The upper supply means 2" has upper presser-foot section 2a and upper driving roller 2b which counter on both sides of a roll sheet 1 in between, sandwiches a roll sheet 1 suitably by these two members, and has the function in which upper driving roller 2b supplies a roll sheet 1 to the downstream by rotating in the direction shown in drawing 1. And it also has the function which carries the roll sheet 1 after making it fracture to the bottom supply means 6.

[0013] ** Top presser-foot section 2a has the role which presses down a roll sheet 1 to upper driving roller 2b. Besides, presser-foot section 2a can be carried out with the gestalt using a coil spring and a flat spring as a means suppressed to upper driving roller 2b.

[0014] Upper presser-foot section 2a in this operation gestalt shown in drawing 1 is the configuration of a roller. Besides as a concrete configuration of presser-foot section 2a, it can carry out not only by the roller but by the tabular member which has the curved field corresponding to the appearance of a driving roller like the "presser-foot member 23" shown in JP,2000-139757,A.

[0015] ** Top driving roller 2b is a cylinder-like roller, and it is arranged so that the side face may touch a roll sheet 1. And this upper driving roller 2b itself rotates, and a roll sheet 1 is supplied using the frictional force of a side face. Besides, although driving roller 2b obtains driving force by rotation of a motor, it may be directly linked with a motor as that gestalt, or may mind a gearing and a belt. Moreover, rotation of upper driving roller 2b is controlled by controlling rotation of this motor.

[0016] In addition, although this upper driving roller 2b and bottom driving

roller 6b mentioned later are controlled by the motor, respectively, it is the same as the former about the control means of this motor and a motor, and is omitted from a drawing. And although the control means of the driving roller (2b, 6b) of these upper and lower sides may be the configuration of having become independent, respectively, it can be carried out also with the gestalt which controls each driving roller by one equipment.

[0017] ** There is a gestalt which suspends supply of a roll sheet 1 in this upper supply means 2 as implementation of this invention at the time of decision of a roll sheet 1. As shown in drawing_1 besides [which stops rotation of upper driving roller 2b] a gestalt as that means for stopping, it is the gestalt to which it is made to connect with migration ***** 4a which mentions this upper presser-foot section 2a later through the supporting point 12, and this migration clip section 4a is moved up and down.

[0018] (2-2) The ***** means 4 ***** means 4 is located down-stream, and is constituted from said upper supply means 2 by the two clip sections (4a, 4b) which counter on both sides of a roll sheet 1 in between. This clip section 4 is movable to arbitration between the location which sandwiches a roll sheet 1, and the location to open. And a roll sheet 1 is inserted by these two members, and it has the role which stops the flow of a roll sheet 1.

[0019] ** With the operation gestalt shown in drawing_1, when the upper clip section 4 is movable and is located upwards up and down, open a roll sheet 1 wide, and when located downward, ***** a roll sheet 1. This movable clip section is set to migration clip section 4a, and the clip section which does not move is set to fixed clip section 4b. A solenoid is used for the end as structure which controls migration of migration clip section 4a. If it is a solenoid, though it is small simple equipment, there is an advantage which can change actuation of disconnection to ***** easily. Moreover, sufficient ***** is securable in order to make a roll sheet 1 fracture.

[0020] ** Accommodation of the force which sandwiches a roll sheet 1 is possible at accommodation of an electrical potential difference and a current. As a class of solenoid, it can carry out with DC mold besides AC mold, and a keeping mold.

[0021] ** A solenoid does not have the description in a fitting location that what is necessary is just the location which can make the plunger of a solenoid connect with migration clip section 4a. Then, a solenoid is omitted with a drawing. Moreover, the motor in which forward inverse rotation is possible can be attached in the supporting point 12, and it can carry out also with the gestalt which rotation of this motor is controlled [gestalt] and makes ***** means 4a go up and down.

[0022] ** And this invention forms the suitable cutting part 11 to cut to a roll sheet 1 and fix one's eyes on the clip section 4 in the ***** means 4. In drawing_1, it is the tip of migration clip section 4a, and is the location which

touches fixed clip section 4b.

[0023] "The suitable cutting part 11 to attach an end eye" means the cutting part 11 for turning off some roll sheets 1 instead of the cutting part for cutting a roll sheet 1 crosswise like before (in order to prepare an end eye). What prepares an about 2-3mm end eye in the both ends of a roll sheet 1 is specifically desirable, and three angular blades width of face of 2-10mm and whose height are 2mm - about 5mm are formed in the both ends of the clip section (4a, 4b) as the configuration. Moreover, you may be the gestalt which prepares a thin piece muscle in the front face of a roll sheet 1 so that a roll sheet 1 may tend to split crosswise and may become. Forming this cutting part 11 may prepare in whichever of the clip sections 4a and 4b.

[0024] (2-3) Form the bottom supply means 6 in the lower stream of a river of the bottom supply means 6 aforementioned ***** means 4. The bottom [this] supply means 6 pulls further the roll sheet 1 by which supply of a roll sheet 1 was stopped with the ***** means 4 to the downstream, and has the role which makes a roll sheet 1 fracture. The configuration is constituted by bottom presser-foot section 6a which counters on both sides of a roll sheet 1 in between as shown in drawing_1 R> 1, and bottom driving roller 6b, the configuration of bottom [this] presser-foot section 6a --- said upper presser-foot section 2a carried out --- being the same --- bottom presser-foot section 6a is made into the gestalt of a roller, and also it can carry out by the tabular member ("pressure plate") which has the curved field. Similarly, it is a cylinder-like roller like upper driving roller 2a which also described above the configuration of bottom driving roller 6b, and the rotation is controlled for a motor through direct or a gearing.

[0025] (3) Allot from the upstream to the supply direction of a roll sheet 1 in order of the upper supply means 2, the ***** means 4, and the bottom supply means 6.

[0026] (4) In implementation of invention of *****, a means to control the motion of the clip section (4a, 4b), upper presser-foot section 2a, etc. in the ***** [besides and] means [means / to control rotation of a driving roller (2b, 6b) like the conventional steamed towel machine] 4 is required. Then, the concrete configuration of this control means is explained. Drawing_4 is the block diagram showing the configuration of a control means. In addition, since it is featureless in the configuration and its arrangement location of a control means, a control means is omitted in drawing_1, drawing_2 mentioned later.

[0027] A control means is constituted by control-section 41, input section 42, output section 43, and the storage section 44. In the input section 42, the information from the rotational frequency and the sensor 8 mentioned later of a driving roller (2b, 6b) is sent to a control section 41. In the storage section 44, rotation of a driving roller (2b, 6b) is controlled, or the data of the

perforation spacing L2 mentioned later are remembered in it to be the program which controls the **** means 4. A control section 41 has CPU and a temporary memory storage function, and performs the directions which control an up-and-down driving roller (2b, 6b) and the up-and-down **** means 4 according to the various programs memorized by the storage section 44. The output section 43 sends the directions from said control section 41 to each means.

[0028] In addition, the control means in this invention can control a motion and function of each means (a top and the bottom supply means 2 and 6, the **** means 4, the manufacture means C, etc.) and each part material, and can carry it out also with the gestalt which has the control means which became independent for every means. And also in roll-sheet feeder style ** (those with a perforation) mentioned later, even if the programs memorized by the storage section 44 differ, they can control each means and member by the almost same configuration.

[0029] (5) Operation flows and explain the flow of the supply of the fractured roll sheet 1 by this roll-sheet feeder style **.

** By rotation of a motor, rotate up-and-down driving roller 2b and 6b, and supply a roll sheet 1 from the bottom supply means 6 to the downstream.

** Apply an electrical potential difference to a solenoid, drop clip section 4a, and insert a roll sheet 1 by clip section 4b, after supplying the suitable die length for steamed towels. Upper presser-foot section 2a connected with coincidence estranges from upper driving roller 2b, and supply of the roll sheet 1 by the upper supply means 2 stops.

** The roll sheet 1 inserted by the **** means 4 is turned off to the both ends by the cutting part 11 prepared in the both ends of clip section 4a, and an eye is prepared.

** With the bottom supply means 6, bottom driving roller 6b continues rotation, and continues pulling a roll sheet 1. Since the roll sheet 1 is inserted into the **** means 4, it fractures the perforation 21 prepared in the both ends as a radix point.

** Bottom driving roller 6b supplies further the roll sheet 1 which continued and fractured rotation also after that to the down-stream manufacture means C. Estranging clip section 4a from clip section 4b, upper presser-foot section 2a contacts upper driving roller 2b. The upper supply means 2 stops operation and equips supply of the following roll sheet 1 with it.

** When supplying a roll sheet 1 newly, return the tip of the roll sheet 1 which upper driving roller 2b rotated and fractured even to the bottom supply means 6 at delivery and the above-mentioned **.

[0030] This invention enables offer of the roll sheet 1 which carried out in this way and proper die length was made to fracture. And it is used for a steamed towel machine by establishing the steamed towel manufacture

department C in the downstream of this roll-sheet feeder style.
[0031] (6) In addition, 13 of the sign shown in drawing 1 is a guide plate for moving a roll sheet 1 horizontally, and when a roll sheet 1 is supplied perpendicularly, it is an unnecessary configuration.

[0032] (*2. roll-sheet feeder style **: Those with a perforation 21)

"Moreover, in order that this invention may solve said technical problem, [2] Hold the roll sheet 1 which formed the perforation 21 at proper spacing. Centering on the roll axes A1 which are shafts of the longitudinal direction of this roll sheet 1, the roll electrode-holder section A with a pivotable roll sheet 1 The upper supply means 2 which is a roll-sheet feeder style possessing the fracture section B which supplies the roll sheet 1 of a predetermined dimension, and the - aforementioned fracture section B supplies down-stream on both sides of a roll sheet 1, and the bottom supply means 6, Have a **** means 4 to have the two clip sections (4a, 4b) which counter on both sides of a roll sheet 1, and it receives in the supply direction of the - roll sheet 1. Allot the bottom supply means 6 to the downstream of the upper supply means 2 and the **** means 4 with fixed spacing, and it sets at the time of supply of the - roll sheet 1. After supplying the roll sheet 1 of the perforation spacing L2 of a perforation 21, and abbreviation same die length formed in the roll sheet 1, while stopping supply of a roll sheet 1 from said **** means 4, the bottom supply means 6 is characterized by having the means which continues supply of a roll sheet 1."

[0033] (Effectiveness) This invention also has an advantage, like exchange of a roll sheet 1 and maintenance TENANSU can carry out to insurance as well as the above-mentioned roll-sheet feeder style ** in order not to use a cutter. Furthermore, in this invention, a result of the fracture surface of a roll sheet 1 becomes beautiful from the gestalt which does not have said perforation 21 since a perforation 21 is formed in a roll sheet 1. Thereby, a user can be provided with the steamed towel of a beautiful result when a steamed towel is created from this roll sheet 1. Moreover, by the perforation 21, it becomes easy to fracture a roll sheet 1, the burden of bottom driving roller 6b decreases, and reduction and durable years of the failure rate of bottom driving roller 6b improve.

[0034] (Configuration)

(1) The steamed towel machine using this roll-sheet feeder style ** is shown in drawing 2 R> 2. The upper supply means [in / here / the roll electrode-holder section A and the fracture section B] 2 and the bottom supply means 6 can be carried out with the same function and structure as the above mentioned roll-sheet feeder style **. On the other hand, this operation gestalt is made to fracture using the perforation 21 prepared in the roll sheet 1. Therefore, the cutting part 11 is unnecessary at the tip of the **** means 4 in the fracture section B. The **** means 4 sandwiches a roll

sheet 1, and if it has the function which can stop the flow, it is sufficient for it.

[0035] (2) Use the roll sheet 1 which formed the perforation 21 with this operation gestalt. This perforation 21 is formed crosswise so that a roll sheet 1 may tend to be torn (that concrete configuration is shown in drawing 6 and drawing 7). Spacing (perforation spacing L2) of the perforation of the longitudinal direction in which a perforation 21 is formed is suitably decided by the application of the fractured roll sheet 1. If this roll sheet 1 is used for a steamed towel, it will consider as spacing of about 10-25cm proper as an object for steamed towels. Moreover, if a roll sheet is used as paper towels, it will consider as spacing of about 20-40cm proper as paper towels.

[0036] In consideration of a material, reinforcement, etc. of a roll sheet 1, when the bottom supply means 6 pulls, spacing of the hole prepared crosswise [of a perforation 21 / of a hole / the configuration or crosswise] is set up so that it may fracture suitably. The concrete configuration is mentioned later.

[0037] [3] In the operation gestalt of roll-sheet feeder style ** which carried out the order above of arrangement, the **** means 4 should just be located in the upstream from the bottom supply means 6. However, the desirable operation gestalt of this invention "is characterized [it is the above mentioned roll-sheet feeder style, and] by establishing the **** means 4 between the upper supply means 2 and the bottom supply means 6."

[0038] This invention makes a roll sheet 1 pull and fracture with the bottom supply means 6. Therefore, the tip of the roll sheet 1 when fracturing surely exists between the **** means 4 and the bottom supply means 6. And the roll sheet 1 after fracturing is sent even to the bottom supply means 6 by the upper supply means 2.

[0039] It will become impossible here, to send a roll sheet 1 from the upper supply means 2 in the point 23 of the roll sheet 1 after fracture being in the upstream from the upper supply means 2. So, such a situation is avoidable with this invention by establishing the **** means 4 between the upper supply means 2 and the bottom supply means 6.

[0040] [4] This invention can be carried out with the gestalt which the above mentioned upper supply means 2 and the **** means 4 became independent of. However, it can carry out from a viewpoint which lessens components mark also with the gestalt which makes a role of a **** means 4 use also [2b / in the upper supply means 2 / upper driving roller]. Then, the desirable operation gestalt of this invention, it is the above mentioned roll-sheet feeder style. - The top supply means 2 has upper driving roller 2b and upper presser-foot section 2a which counter on both sides of a roll sheet 1 in between. - The **** means 4 carries out a roll sheet 1 in

between, and it has migration clip section 4a in the opposite side of said upper driving roller 2b. - It is characterized by ****(ing) a roll sheet 1 because the aforementioned migration clip section 4a is movable in between the location which touches said upper driving roller 2b, and the locations to leave and presses down a roll sheet 1 to upper driving roller 2b."

[0041] Thereby, the components mark of the fracture section B are lessened and it becomes possible to attain reduction of a manufacturing cost, and miniaturization. This operation gestalt is shown in drawing 2 and drawing 3.

Sign 2b in drawing is upper driving roller 2b in the upper supply means 2, and is fixed clip section 4b in the **** means 4.

[0042] [5] It is necessary to adjust the die length which supplies a roll sheet 1 in implementation of this invention. As the accommodation means, it is the gestalt which controls the rotational frequency of an up-and-down driving roller (2b, 6b). In addition, it can carry out also with the gestalt which always grasps the location at the tip 23 of a roll sheet 1, using a sensor 8 as a gestalt controlled with a sufficient precision. Then, as a desirable operation gestalt of this invention, "it is the above mentioned roll-sheet feeder style, and is characterized by forming a sensor 8 between the bottom supply means 6 and the **** means 4, and performing centering control of the point 23 of a roll sheet 1 based on the information from this sensor 8."

[0043] It becomes possible to make a roll sheet 1 supply from the condition same thereby always, and it becomes easy to arrange a perforation 21 between the **** means 4 and the bottom supply means 6.

[0044] This the "sensor 8" is set up towards the supply way of a roll sheet 1, and has the function to check whether it is that a roll sheet 1 exists in front of a sensor 8. This sensor 8 does not have especially a limit in that gestalt that what is necessary is just what can check existence of a roll sheet 1 as described above. In drawing 2, a sensor 8 is arranged towards a supply way and the existence of the roll sheet 1 in front of a sensor 8 is checked by the optical technique (laser light, infrared radiation, etc.). The tip of the fractured roll sheet 1 surely exists between the bottom supply means 6 and the **** means 4. Then, this sensor 8 is formed between the bottom supply means 6 and the **** means 4.

[0045] And this invention performs centering control of the point 23 of a roll sheet 1 based on the information from a sensor 8. As a means of the centering control, rotation of upper driving roller 2b is controlled based on the information from a sensor 8. The configuration of a control means is shown in drawing 4. Information is sent to a control section 41 through the input section 42 from a sensor 8, a program works based on this information, and the rotational frequency, turnover time, etc. of upper driving roller 2b are determined. And this rotational frequency etc. is minded output section 43, is sent to the motor of upper driving roller 2b, and controls rotation of upper

driving roller 2b based on that information.

[0046] [6] Only the perforation spacing L2 of a perforation 21 supplies a roll sheet 1, and this invention makes it fracture after that. Here, if the perforation spacing L2 is too shorter than the spacing L1 of the **** means 4 and the bottom supply means 6, the condition that two or more perforations 21 exist between the **** means 4 and the bottom supply

means 6 will arise. the case where did not understand by which perforation 21 it would fracture in such a situation, but it fractures by the perforation 21 of the upstream --- a perforation 21 --- it becomes the situation where the roll sheet 1 for two is supplied and is not desirable. On the other hand, when the perforation spacing L2 is too much bigger than the spacing L1 of the **** means 4 and the bottom supply means 6, it must always supply

correctly by spacing of a perforation 21, and if a difference arises to the die length to supply, the situation that a perforation 21 does not exist between the **** means 4 and the bottom supply means 6 will arise. A roll sheet 1 cannot be made to fracture now.

[0047] then, the desirable operation gestalt of this invention --- "the perforation spacing L2 of the perforation 21 which is said roll-sheet feeder style carried out, and was prepared in the roll sheet 1, and the spacing L1 of the **** means 4 and the bottom supply means 6 --- abbreviation --- it is thing" characterized by the same thing.

[0048] Even if the die length of the roll sheet 1 to supply has some change by this, the situation that a perforation 21 always exists between the **** means 4 and the bottom supply means 6 can be produced, and the tolerance of the precision which supplies a roll sheet 1 spreads.

[0049] (* example) The example of roll-sheet feeder style ** using the roll sheet 1 which formed the perforation 21, and the steamed towel machine using this feeder style is explained. This invention makes the roll sheet 1 which formed the perforation 21 fracture, and the above mentioned roll feeder style ** differs from its configuration. However, since it can carry out with a common function about each of the upper supply means 2, the **** means 4, and the bottom supply means 6, the publication of said roll-sheet feeder style ** is also referred to, and an example is explained.

[0050] The example which used this invention for the steamed towel machine is shown in drawing 2 R2. As shown in drawing, this roll-sheet feeder style ** and a steamed towel machine are also constituted by the roll electrode-holder section A and the fracture section B, and the manufacture means C (a nozzle 28 is included) is formed in that downstream. Moreover, the water spray means D for making a steamed towel become wet suitably is established. The nozzle 28 in the water spray means D is formed in right above near the manufacture means C. With this operation gestalt, it turns at a roll sheet 1 at a right angle in upper driving roller 2b. The supply way of a

roll sheet 1 can be carried out not only with a horizontal direction but with the gestalt which bends on the way like this operation gestalt, as roll-sheet feeder style ** explained, and it can be suitably changed according to the configuration of a machine where a roll-sheet feeder style is prepared. In addition, the roll electrode-holder section A is the same as that of the above mentioned explanation.

[0051] Moreover, this invention forms a sensor 8 between the **** means 4 and the bottom supply means 6. And about the manufacture means C and the water spray means D, the configuration of the conventional steamed towel machine can be carried out by using as it is.

[0052] [Explanation of the fracture section B] The fracture section B is constituted by the upper supply means 2, the **** means 4, and the bottom supply means 6. This fracture section B is shown in drawing 2 and a-3d of drawing 3.

[0053] (1) The supply-on upper supply means 2 means 2 is constituted by upper presser-foot section 2a and upper driving roller 2b which are shown in drawing 3. Upper presser-foot section 2a is a member which has the function to press down a roll sheet 1 to upper driving roller 2b suitably, and is taken as the configuration of a roller like roll-sheet feeder style **. And there is especially no limit in a means by which upper presser-foot section 2a presses down a roll sheet 1 to upper driving roller 2b, and the spring 33 supported with the supporting point 30 as shown in drawing 2 is used with this operation gestalt. The rotational frequency etc. is controlled by the control means like roll-sheet feeder style ** which described upper driving roller 2b above.

[0054] (2) The **** means 4 **** means 4 is constituted by migration clip section 4a and fixed clip section 4b which counter a roll sheet 1 in between. In this example, upper driving roller 2b makes fixed clip section 4b serve a double purpose, and **** a roll sheet 1 by suppressing the tip 42 of migration clip section 4a to upper driving roller 2b. Migration clip section 4a is taken as tabular [which is shown in drawing 3].

[0055] In addition, it is in the condition that make upper presser-foot section 2a and migration clip section 4a connect through the supporting point 12, and the **** means 4 sandwiches a roll sheet 1 like the gestalt shown in drawing 1, and operation is possible also with the gestalt which upper presser-foot section 2a estranges from upper driving roller 2b.

[0056] A means to control a motion of this migration clip section 4a is explained. Drawing 3 a-d is the enlarged drawing of the **** means 4, and is drawing having shown the motion of migration clip section 4a. A solenoid 32 is formed in the other end of migration clip section 4a, and migration clip section 4a rocks focusing on the supporting point 31 according to a motion of a plunger.

**** Drawing 3 a is in the condition which the solenoid opened, and is a state diagram which supplies the roll sheet 1. In this case, a clearance is between migration clip section 4a and upper driving roller 2b.**

**** Drawing 3 b is in the condition into which migration clip section 4a inserted the roll sheet 1. This condition applies an electrical potential difference to a solenoid 32 by the control means, and suppresses migration clip section 4a to upper driving roller 2b (fixed clip section 4b).**

[0057] In addition, when inserting this roll sheet 1, the existence of rotation of upper driving roller 2b does not ask. However, the point of ******(ing)** a roll sheet 1 more firmly to upper driving roller 2b has the desirable gestalt which suspends rotation. Therefore, a control means is interlocked with a motion of the above mentioned migration clip section 4a, and stops rotation of upper driving roller 2b.

[0058] the tip of the roll sheet 1 which the sign 22 shown in drawing 2 is a guide plate, and was fractured — the bottom supply means 6 — **skillful ****rare **** — the role which draws the tip of a roll sheet 1 between bottom driving roller 6b and bottom presser-foot section 6a is carried out like.

[0059] (3) Form the bottom supply means 6 in the lower stream of a river of the bottom supply means 6 aforementioned ******** means 4. The bottom [this] supply means 6 is constituted by bottom presser-foot section 6a which is two rollers which counter a roll sheet 1 in between, and bottom driving roller 6b.

[0060] And if spacing of the ******** means 4 and the bottom supply means 6 is too narrow, adjustment of the location of a perforation 21, i.e., control of a driving roller, becomes difficult. Then, the location in which the bottom supply means 6 is formed has the desirable range of about 3-30cm of downstream of the ******** means 4, and it makes it 20cm downstream from the ******** means 4 with this operation gestalt. Furthermore, the ******** means 4 is formed in ********* near [means / 6 / bottom supply] the upper supply means 2 from a viewpoint which makes large between this ******** means 4 and the bottom supply means 6 as much as possible, using this fracture section B as a compact.

[0061] (4) the perforation spacing L2 — spacing L1 and the perforation spacing L2 of the viewpoint which avoids further the situation where a perforation 21 does not exist between the ******** means 4 and the bottom supply means 6 to this ******** means 4, and the bottom supply means 6 — abbreviation — suppose that it is the same.

[0062] (5) A sensor 8 and this invention are ******** about a sensor 8 between the ******** means 4 and the bottom supply means 6. In drawing 2, a sensor 8 is arranged towards a supply way and the existence of the roll sheet 1 in front of a sensor 8 is checked with infrared radiation. And this invention controls upper driving roller 2b based on the information from a sensor 8.

The configuration of a control means is as having described above.
[0063] The following gestalten are mentioned as a control gestalt based on a sensor 8.

[0064] (5-1) centering control A — when supply of the fractured roll sheet 1 finishes, this accommodation gestalt investigates the location of the point 23 of a roll sheet 1 immediately, and performs centering control. In addition, the point of a roll sheet 1 is shown as a sign 23.

****** When a roll sheet 1 fractures by the upstream from a sensor 8, the point 23 of a roll sheet 1 is located in the upstream in [sensor / 8] this case. Therefore, a roll sheet 1 does not exist in front of a sensor 8. Then, upper driving roller 2b is rotated until a roll sheet 1 reaches a sensor 8. And when the point 23 of a roll sheet 1 reaches a sensor 8, a sensor 8 senses a roll sheet 1 and stands by rotation of upper driving roller 2b to supply of a stop and the following roll sheet 1.

****** On the other hand, when a roll sheet 1 fractures by the downstream from a sensor 8, sense that a sensor 8 has a roll sheet 1 before that in this case. Therefore, the directions rotated to upper driving roller 2b are not given, but stand by to supply of the following roll sheet 1.

****** Pull back a roll sheet 1 until it gives the directions which carry out inverse rotation to top driving roller 2b and a sensor 8 stops sensing a roll sheet 1 again, when a roll sheet 1 fractures by the downstream from a sensor 8.

[0065] And as centering control, if it is the combination of the above-mentioned ****** and ******, the tip of a roll sheet 1 will always exist in the sensor 8 neighborhood, and there is an advantage to which adjustment (accommodation of rotation of a driving roller) of the amount of supply of the next roll sheet 1 becomes easy.

[0066] This operation gestalt "is characterized by controlling upper driving roller 2b based on the information from a sensor 8, and controlling the point 23 of a roll sheet 1 after fracture of a roll sheet 1 to be located in the sensor 8 neighborhood."

[0067] (5-2) centering control B — when supply of the fractured roll sheet 1 finishes the gestalt of this accommodation, even if the point 23 of a roll sheet 1 exists in which location, don't perform centering control. And when supply directions of the following roll sheet 1 are performed, it is the gestalt which performs the above-mentioned centering control first and supplies a roll sheet 1 after that.

[0068] (6) Explain signs that the roll sheet 1 judged by the flow, next the perforation 21 of supply is supplied, using drawing 3 a-d.

****** The perforation 21 is formed in the roll sheet 1. And the location of the fracture section B before initiation and a roll sheet 1 is shown in drawing 3 a. The point 23 of a roll sheet 1 is between the ******** means 4 and the bottom

supply means 6, and is stopped by the location of a sensor 8. In addition, the control means is made to memorize beforehand the perforation spacing L2 of the perforation 21 prepared in the roll sheet 1, and when there are directions which supply a roll sheet 1, it rotates upper driving roller 2a by spacing of this perforation 21, and supplies a roll sheet 1.

** In response to directions of the start from the outside, upper driving roller 2b and bottom driving roller 6b begin rotation. And the tip of a roll sheet 1 is sent to the bottom supply means 6 by rotation of upper driving roller 2b.

After the point 23 of a roll sheet 1 reaches the bottom supply means 6, a roll sheet 1 is sent to the downstream also by the bottom supply means 6.

** Recognize how many roll sheets 1 were supplied from the rotational frequency of upper driving roller 2b in a control means. And when the roll sheet 1 of the perforation spacing L2 and abbreviation same die length is supplied, the **** means 4 is operated (the solenoid 32 prepared in migration clip section 4a is worked).

** The condition of having operated the **** means 4 is shown in drawing 3 b. Migration clip section 4a is suppressed by upper driving roller 2b by the solenoid. And a control means stops rotation of upper driving roller 2b.

** With the bottom supply means 6, bottom driving roller 6b continues rotation, and pulls a roll sheet 1. And a roll sheet 1 is fractured on the basis of a perforation 21. The situation is shown in drawing 3 c.

** As for bottom driving roller 6b, after fracture supplies the roll sheet 1 which continued and fractured rotation to the down-stream manufacture means C. The situation is shown in drawing 3 d.

** In drawing 3 d, the point 23 of a roll sheet 1 is in the upstream from a sensor 8. Then, a sensor 8 sends the information which does not sense existence of a roll sheet 1 to a control means. A control means receives the information sensed from the sensor 8, when upper driving roller 2b is rotated and it comes to a sensor 8 until the point 23 of a roll sheet 1 comes to the location of a sensor 8, and it stops rotation of upper driving roller 2b. And it returns to the condition of drawing 3 a.

[0069] (Steamed towel machine)

[7] This invention is "a steamed towel machine which has the roll-sheet feeder style (the aforementioned ** and ** are included) and the manufacture means C which were explained until now, and the water spray means D."

[0070] ** "The manufacture means C" means the means which rolls the fractured roll sheet 1 and makes a steamed towel. As this manufacture means C, implementation of this invention is possible using the manufacture means C of various gestalten used from the former. The example shown in drawing 2 arranges the endless belt 25 on the surroundings of two rollers 24a and 24b attached free [rotation], and arranges the fixed belt 26 near [the]

the outside. Here, the endless belt 25 is formed in the outside of these two rollers 24, and let the part rotated in order to roll a roll sheet 1 be the "winding roller 9" in this invention. And a roll sheet 1 is rolled in the clearance between this endless belt 25 and the fixed belt 26, and a steamed towel is manufactured.

[0071] ** "The water spray means D" is a means established when offering the damp steamed towel, and it is constituted by the tank 27 in which water is stored, and the nozzle 28 which gives water to a roll sheet 1. In addition, the location of this water spray means D in which it can carry out with the technique used for a certain steamed towel machine from the former, and a nozzle 28 is formed is also the same as usual.

[0072] (Effectiveness) Thereby, the steamed towel machine with easy exchange of a roll sheet 1 etc. with an easy and maintenance which is the effectiveness of the roll-sheet feeder style explained until now can be offered.

[0073] (Configuration) As a roll-sheet feeder style, it can carry out using roll-sheet feeder style ** besides roll-sheet feeder style ** explained until now. If it is roll-sheet feeder style ** here, there is an advantage which can offer the steamed towel which changed the die length of a roll sheet 1 into arbitration. On the other hand, if it is roll-sheet feeder style **, it is the steamed towel of the always same die length, and the fracture surface can offer a beautiful steamed towel.

[0074] (Operation gestalt of *, and others) It can carry out with the gestalt which makes bottom driving roller 6b in the bottom supply means 6 use also [roller / in the manufacture means C / "winding roller 9"] as a steamed towel machine in this invention.

[0075] [8] The operation gestalt of this invention "is characterized [it is said steamed towel machine, and] by making a roll sheet 1 supply and fracture with the winding roller 9, while the winding roller 9 in the manufacture means C makes bottom driving roller 6b in the bottom supply means 6 serve a double purpose and stops supply of a roll sheet 1 with the **** means 4."

[0076] Thus, structure is simplified and it becomes possible to aim at miniaturization of a steamed towel machine, easy-izing of the maintenance by reduction of components mark, and reduction of a manufacturing cost because the winding roller 9 makes bottom driving roller 6b serve a double purpose.

[0077] This gestalt "the winding roller 9 uses bottom driving roller 6b also [gestalt]" is shown in drawing 5. It is the gestalt which the manufacture means C is established [gestalt] and makes the bottom supply means 6 use also [means / C / this / manufacture], without establishing the bottom supply means 6 as shown in the downstream of the **** means 4 at drawing 2 with the operation gestalt shown in drawing 5. With the operation gestalt

shown in drawing 5, the winding roller 9 in the manufacture means C makes bottom driving roller 6b serve a double purpose. And bottom presser-foot section 6a is arranged in the location where a roll sheet 1 and the winding roller 9 touch. If the winding roller 9 is rotated in order to roll a steamed towel while inserting a roll sheet 1 and stopping the supply with the **** means 4 by this, a roll sheet 1 will be pulled and it will become possible to make a roll sheet 1 fracture.

[0078] And from a viewpoint which controls the location of a roll sheet 1 also in this operation gestalt, a sensor 8 is formed between the **** means 4 and bottom presser-foot section 6a, and upper driving roller 2b is controlled based on the information from this sensor 8. In addition, with this operation gestalt, in order to make a roll sheet 1 easy to roll, the belt device 41 which considers rotation of the opposite sense as this rolling-up roller 9 is formed in the upper right of the rolling-up roller 9.

[0079] [9] Furthermore, the desirable operation gestalt of this invention "is characterized [it is said steamed towel machine and] by forward reverse rotation of the aforementioned winding roller 9 being possible." Thereby, if it is the direction (drawing clockwise rotation) of [for rolling a roll sheet 1], the rolled steamed towel will be discharged. On the other hand, if the winding roller 9 is rotation (drawing counterclockwise rotation) of hard flow, the straight roll sheet 1 will be discharged, without rolling a roll sheet 1, the effectiveness as a steamed towel machine explained by this until now -- in addition, it can respond to a user's needs wished that he still wants the roll sheet 1 which is not rolled. With this operation gestalt, bottom presser-foot section 6a is prepared not only in a steamed towel volume side (clockwise rotation side) but in a straight side (counterclockwise rotation side) (drawing 4 shows 6a). And based on the directions into which this motor was inputted from the outside by the motor which makes the winding roller 9 drive using the motor in which inverse rotation is possible as a means which makes possible the right reverse of the hand of cut of the winding roller 9, a control means controls that rotation.

[0080] And the roll sheet 1 which flows when a cross section forms the discharge member C2 of an abbreviation trigonum in the discharge section C1 (left-hand side of the rolling-up roller 9) by which a steamed towel is discharged and the rolling-up roller 9 carries out a counterclockwise rotation to it is discharged to the exterior of a steamed towel machine.

[0081] (Unification with the *5. upper supply means 2 and the **** means 4) If it considers reducing components mark again, implementation of this invention is possible also with the gestalt which unified this **** means 4 and the upper supply means 2. It is the gestalt in which upper presser-foot section 2a shown in drawing 2 does not exist as the gestalt, but migration clip section 4a plays the role of upper presser-foot section 2a (the gestalt in

which is not asked but upper presser-foot section 2a plays the role of migration clip section 4a is also good for a name).

[0082] As the operation gestalt, migration clip section 4a has a function as upper presser-foot section 2a by pressing down a roll sheet 1 by the proper force first. And a roll sheet 1 is pressed down to upper driving roller 2b by the stronger force, and it opposes that a roll sheet 1 is pulled by the bottom supply means 6 at the same time it stops rotation of upper driving roller 2b, when making a roll sheet 1 fracture.

[0083] As the configuration, a motor is formed in the supporting point 31 shown in drawing 3, and when supplying a roll sheet 1, weak driving force is given. This presses down a roll sheet 1 by the proper force. On the other hand, when making a roll sheet 1 **** and fracture, an electrical potential difference is raised, powerful driving force is given, and a roll sheet 1 is pressed down by the stronger force.

[0084] Moreover, it can carry out also with the gestalt using two kinds of solenoids. As the configuration, the protrusion of a plunger allots a big thing and a small solenoid to migration clip section 4a. And in supplying a roll sheet 1, it controls migration clip section 4a using the small thing of a protrusion of a plunger. And when inserting a roll sheet 1, migration clip section 4a is strongly suppressed to upper driving roller 2b (fixed clip section 4b) using a solenoid with a bigger protrusion.

[0085] The configuration of this operation gestalt, "the upper supply means 2 has upper driving roller 2b and upper presser-foot section 2a, and the **** means 4 has migration clip section 4a and fixed clip section 4b which counter a roll sheet 1 in between. And this ***** 4a makes upper presser-foot section 2a serve a double purpose, and migration clip section 4a supplies a roll sheet 1 by pressing down a roll sheet 1 to upper driving roller 2b. Furthermore, upper driving roller 2b makes fixed clip section 4b serve a double purpose, and migration clip section 4a is characterized by ****(ing) a roll sheet 1 by pressing down a roll sheet 1 by the stronger force to upper driving roller 2b. It is the roll-sheet feeder style of the above configuration."

[0086] (Roll sheet)

[10] This invention offers a steamed towel from the fractured roll sheet 1. In fracture having begun from either of the right and left of the perforation 21 of a roll sheet 1 here, a roll sheet 1 will incline in a supply way. When a roll sheet 1 inclines, the form of the steamed towel rolled with the manufacture means C stops and being ready. Therefore, the location where fracture of a perforation 21 starts has the desirable gestalt fractured to bilateral symmetry to the core or core of a roll sheet 1. Then, as a roll sheet 1 for carrying out this invention, "it is the roll sheet 1 for steamed towels made from a cotton, and is characterized by forming the perforation 21 crosswise and changing the magnitude of the hole of a perforation 21 to the

abbreviation symmetry on the basis of the core of a roll sheet 1." And in order to maintain proper reinforcement, the roll sheet 1 used for this invention has the desirable thing of 2 chip boxes.

[0087] Here, they are the following **gestalten** of a roll sheet 1 shown to drawing 6 "it makes it change to the abbreviation symmetry on the basis of a core."

**** Drawing 6 a :** preparing big perforation 21a in the core of a roll sheet 1, other perforation 21b is **gestalten** made into a small thing.

**** Drawing 6 b :** it is the **gestalt** which makes magnitude of a perforation 21 small as big perforation 21a is prepared near a core and it spreads crosswise from a core.

[0088] Perforation 21a of a core fractures the **gestalt** of the perforation 21 of this ****** and **** first**, and that fracture spreads right and left.

**** Drawing 6 c :** it is the **gestalt** which prepares perforation 21c of the same magnitude as right and left of a roll sheet 1, and makes magnitude of 21d of perforations small towards the core. Moreover, the **gestalt** which prepares perforation 21c of the same magnitude as right and left of a roll sheet 1, and makes small 21d of perforations near a core is sufficient. This **gestalt** is a **gestalt** to which perforation 21c on either side fractures to coincidence mostly, and that fracture advances at the core.

[0089] [11] Moreover, as a desirable roll sheet 1, it is "what it is the roll sheet 1 for steamed towels made from a cotton, and the perforation 21 is formed crosswise, and formed infeed 71 in the edge of a perforation 21."

[0090] Since fracture of a roll sheet 1 begins on the basis of this **sitting** by this in addition to the effectiveness described until now, the burden of bottom driving roller of role which pulls roll sheet 1 6b decreases. This operation **gestalt** is shown in drawing 7. It further becomes easy to fracture the both ends of a roll sheet 1 by forming infeed 71 in the both ends other than a perforation 21, and the burden of the bottom supply means 6 decreases.

[0091] (11-1) Moreover, the desirable roll sheet 1 is "what the magnitude of the hole of a perforation 21 was changed to the abbreviation symmetry on the basis of the core of a roll sheet 1, and formed infeed 71 in the edge of a perforation 21." If it is this **gestalt**, the above-mentioned (1) and the roll sheet which ******* effectiveness** of (2) can be offered.

[0092] [12] moreover, the desirable roll sheet 1 **--- "the spacing L1 of the **** means 4 of roll-sheet feeder style ** using the roll sheet 1 which formed the perforation 21, and the bottom supply means 6, and the perforation spacing L2 of a perforation 21 --- abbreviation --- it is thing"** characterized by the same thing. Thereby, the situation where a perforation 21 does not exist in said spacing L1 is avoidable.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the equipment (steamed towel machine) which manufactures the device and steamed towel for supplying a roll sheet.

[Translation done.]

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EFFECT OF THE INVENTION

[The means for solving a technical problem, an operation gestalt, and its effectiveness] As an operation gestalt of this invention, there are a gestalt using the roll sheet which prepared the perforation, and a gestalt which does not prepare a perforation. Then, the device using the roll sheet which does not prepare a perforation is made into roll-sheet feeder style **, and the device using the roll sheet which prepared the perforation is made into roll-sheet feeder style **.

[0005] (*1. roll-sheet feeder style **: With no perforation 21)

"Hold a roll sheet 1 and centering on the roll axes A1 which are the axial centers of this roll sheet 1 In order that this invention may solve said technical problem, [1] The roll electrode-holder section A with a pivotable roll sheet 1 An upper supply means 2 by which are the roll-sheet feeder style which has the fracture section B which supplies the roll sheet 1 which was located in the lower stream of a river of this roll electrode-holder section, and was fractured, and the - aforementioned fracture section B supplies a roll sheet 1 down-stream, and the bottom supply means 6, Have two **** means 4 which it has the clip section (4a, 4b) to counter on both sides of a roll sheet 1 in between, have the proper cutting part 11 on which the - aforementioned **** means 4 cuts to a roll sheet 1, and fixes its eyes, and it receives in the supply direction of the - roll sheet 1. After allotting in order of the upper supply means 2, the **** means 4, and the bottom supply means 6 and supplying a roll sheet 1 to proper die length at the time of supply of the - roll sheet 1, while said **** means 4 sandwiches a roll sheet 1 and stops the supply It is characterized by having a means by which said bottom supply means 6 continues supply of a roll sheet 1."

[Translation done.]

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TECHNICAL PROBLEM

[Description of the Prior Art] There is utility model registration No. 3011567 as a technique of dividing a roll sheet into proper magnitude in the conventional steamed towel machine. On these specifications, as shown in drawing 8, the roll sheet was cut in proper magnitude using "the cutting blade 86." Moreover, there were some which form a rotation roller cutting edge in the outside of the roller which rotates like the utility model registration No. 2018094 as a device in which a roll sheet is cut.

(Trouble 1) The edge of a blade becomes round by use of a fixed period, and it may be able to stop however, might be unable to cut the roll sheet by the device in which a roll sheet is cut using the sharp edge of a blade like before. Therefore, grinding the edge of a blade periodically etc. needed to be maintained periodical.

(Trouble 2) Since the edge of a blade for cutting a roll sheet always needed to be ground keenly, accommodation of a roll-sheet feeder style and a roll sheet repacked it, and it had risk of inflicting an injury on an operator again at the time of an activity.

[Translation done.]

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EXAMPLE

(* example) The example of roll-sheet feeder style ** using the roll sheet 1 which formed the perforation 21, and the steamed towel machine using this feeder style is explained. This invention makes the roll sheet 1 which formed the perforation 21 fracture, and the above mentioned roll feeder style ** differs from its configuration. However, since it can carry out with a common function about each of the upper supply means 2, the **** means 4, and the bottom supply means 6, the publication of said roll-sheet feeder style ** is also referred to, and an example is explained.

[0050] The example which used this invention for the steamed towel machine is shown in drawing 2 R. As shown in drawing, this roll-sheet feeder style ** and a steamed towel machine are also constituted by the roll

electrode-holder section A and the fracture section B, and the manufacture means C (a nozzle 28 is included) is formed in that downstream. Moreover, the water spray means D for making a steamed towel become wet suitably is established. The nozzle 28 in the water spray means D is formed in right above near the manufacture means C. With this operation gestalt, it turns at a roll sheet 1 at a right angle in upper driving roller 2b. The supply way of a roll sheet 1 can be carried out not only with a horizontal direction but with the gestalt which bends on the way like this operation gestalt, as roll-sheet feeder style ** explained, and it can be suitably changed according to the configuration of a machine where a roll-sheet feeder style is prepared. In addition, the roll electrode-holder section A is the same as that of the above mentioned explanation.

[0051] Moreover, this invention forms a sensor 8 between the **** means 4 and the bottom supply means 6. And about the manufacture means C and the water spray means D, the configuration of the conventional steamed towel machine can be carried out by using as it is.

[0052] (Explanation of the fracture section B) The fracture section B is constituted by the upper supply means 2, the **** means 4, and the bottom

supply means 6. This fracture section B is shown in drawing 2 and a-3d of drawing 3.

[0053] (1) The supply-on upper supply means 2 means 2 is constituted by upper presser-foot section 2a and upper driving roller 2b which are shown in drawing 3. Upper presser-foot section 2a is a member which has the function to press down a roll sheet 1 to upper driving roller 2b suitably, and is taken as the configuration of a roller like roll-sheet feeder style **. And there is especially no limit in a means by which upper presser-foot section 2a presses down a roll sheet 1 to upper driving roller 2b, and the spring 33 supported with the supporting point 30 as shown in drawing 2 is used with this operation gestalt. The rotational frequency etc. is controlled by the control means like roll-sheet feeder style ** which described upper driving roller 2b above.

[0054] (2) The **** means 4 **** means 4 is constituted by migration clip section 4a and fixed clip section 4b which counter a roll sheet 1 in between. In this example, upper driving roller 2b makes fixed clip section 4b serve a double purpose, and **** a roll sheet 1 by suppressing the tip 42 of migration clip section 4a to upper driving roller 2b. Migration clip section 4a is taken as tabular [which is shown in drawing 3].

[0055] In addition, it is in the condition that make upper presser-foot section 2a and migration clip section 4a connect through the supporting point 12, and the **** means 4 sandwiches a roll sheet 1 like the gestalt shown in drawing 1, and operation is possible also with the gestalt which upper presser-foot section 2a estranges from upper driving roller 2b.

[0056] A means to control a motion of this migration clip section 4a is explained. Drawing 3 a-d is the enlarged drawing of the **** means 4, and is drawing having shown the motion of migration clip section 4a. A solenoid 32 is formed in the other end of migration clip section 4a, and migration clip section 4a rocks focusing on the supporting point 31 according to a motion of a plunger.

** Drawing 3 a is in the condition which the solenoid opened, and is a state diagram which supplies the roll sheet 1. In this case, a clearance is between migration clip section 4a and upper driving roller 2b.

** Drawing 3 b is in the condition into which migration clip section 4a inserted the roll sheet 1. This condition applies an electrical potential difference to a solenoid 32 by the control means, and suppresses migration clip section 4a to upper driving roller 2b (fixed clip section 4b).

[0057] In addition, when inserting this roll sheet 1, the existence of rotation of upper driving roller 2b does not ask. However, the point of ****(ing) a roll sheet 1 more firmly to upper driving roller 2b has the desirable gestalt which suspends rotation. Therefore, a control means is interlocked with a motion of the above mentioned migration clip section 4a, and stops rotation of upper

driving roller 2b.

[0058] the tip of the roll sheet 1 which the sign 22 shown in drawing 2 is a guide plate, and was fractured — the bottom supply means 6 — skillful **** rare ** — the role which draws the tip of a roll sheet 1 between bottom driving roller 6b and bottom presser-foot section 6a is carried out like.

[0059] (3) Form the bottom supply means 6 in the lower stream of a river of the bottom supply means 6 aforementioned **** means 4. The bottom [this] supply means 6 is constituted by bottom presser-foot section 6a which is two rollers which counter a roll sheet 1 in between, and bottom driving roller 6b.

[0060] And if spacing of the **** means 4 and the bottom supply means 6 is too narrow, adjustment of the location of a perforation 21, i.e., control of a driving roller, becomes difficult. Then, the location in which the bottom supply means 6 is formed has the desirable range of about 3-30cm of downstream of the **** means 4, and it makes it 20cm downstream from the **** means 4 with this operation gestalt. Furthermore, the **** means 4 is formed in ***** near [means / 6 / bottom supply] the upper supply means 2 from a viewpoint which makes large between this **** means 4 and the bottom supply means 6 as much as possible, using this fracture section B as a compact.

[0061] (4) the perforation spacing L2 — spacing L1 and the perforation spacing L2 of the viewpoint which avoids further the situation where a perforation 21 does not exist between the **** means 4 and the bottom supply means 6 to this **** means 4, and the bottom supply means 6 — abbreviation — suppose that it is the same.

[0062] (5) A sensor 8 and this invention are **** about a sensor 8 between the **** means 4 and the bottom supply means 6. In drawing 2, a sensor 8 is arranged towards a supply way and the existence of the roll sheet 1 in front of a sensor 8 is checked with infrared radiation. And this invention controls upper driving roller 2b based on the information from a sensor 8. The configuration of a control means is as having described above.

[0063] The following gestalten are mentioned as a control gestalt based on a sensor 8.

[0064] (5-1) centering control A — when supply of the fractured roll sheet 1 finishes, this accommodation gestalt investigates the location of the point 23 of a roll sheet 1 immediately, and performs centering control. In addition, the point of a roll sheet 1 is shown as a sign 23.

** When a roll sheet 1 fractures by the upstream from a sensor 8, the point 23 of a roll sheet 1 is located in the upstream in [sensor / 8] this case. Therefore, a roll sheet 1 does not exist in front of a sensor 8. Then, upper driving roller 2b is rotated until a roll sheet 1 reaches a sensor 8. And when the point 23 of a roll sheet 1 reaches a sensor 8, a sensor 8 senses a roll

sheet 1 and stands by rotation of upper driving roller 2b to supply of a stop and the following roll sheet 1.

** On the other hand, when a roll sheet 1 fractures by the downstream from a sensor 8, sense that a sensor 8 has a roll sheet 1 before that in this case. Therefore, the directions rotated to upper driving roller 2b are not given, but stand by to supply of the following roll sheet 1.

** Pull back a roll sheet 1 until it gives the directions which carry out inverse rotation to top driving roller 2b and a sensor 8 stops sensing a roll sheet 1 again, when a roll sheet 1 fractures by the downstream from a sensor 8.

[0065] And as centering control, if it is the combination of the above-mentioned ** and **, the tip of a roll sheet 1 will always exist in the sensor 8 neighborhood, and there is an advantage to which adjustment (accommodation of rotation of a driving roller) of the amount of supply of the next roll sheet 1 becomes easy.

[0066] This operation gestalt "is characterized by controlling upper driving roller 2b based on the information from a sensor 8, and controlling the point 23 of a roll sheet 1 after fracture of a roll sheet 1 to be located in the sensor 8 neighborhood."

[0067] (5-2) centering control B — when supply of the fractured roll sheet 1 finishes the gestalt of this accommodation, even if the point 23 of a roll sheet 1 exists in which location, don't perform centering control. And when supply directions of the following roll sheet 1 are performed, it is the gestalt which performs the above-mentioned centering control first and supplies a roll sheet 1 after that.

[0068] (6) Explain signs that the roll sheet 1 judged by the flow, next the perforation 21 of supply is supplied, using drawing 3 a-d.

** The perforation 21 is formed in the roll sheet 1. And the location of the fracture section B before initiation and a roll sheet 1 is shown in drawing 3 a. The point 23 of a roll sheet 1 is between the **** means 4 and the bottom supply means 6, and is stopped by the location of a sensor 8. In addition, the control means is made to memorize beforehand the perforation spacing L2 of the perforation 21 prepared in the roll sheet 1, and when there are directions which supply a roll sheet 1, it rotates upper driving roller 2a by spacing of this perforation 21, and supplies a roll sheet 1.

** In response to directions of the start from the outside, upper driving roller 2b and bottom driving roller 6b begin rotation. And the tip of a roll sheet 1 is sent to the bottom supply means 6 by rotation of upper driving roller 2b. After the point 23 of a roll sheet 1 reaches the bottom supply means 6, a roll sheet 1 is sent to the downstream also by the bottom supply means 6.

** Recognize how many roll sheets 1 were supplied from the rotational frequency of upper driving roller 2b in a control means. And when the roll

sheet 1 of the perforation spacing L2 and abbreviation same die length is supplied, the **** means 4 is operated (the solenoid 32 prepared in migration clip section 4a is worked).

** The condition of having operated the **** means 4 is shown in drawing 3 b. Migration clip section 4a is suppressed by upper driving roller 2b by the solenoid. And a control means stops rotation of upper driving roller 2b.

** With the bottom supply means 6, bottom driving roller 6b continues rotation, and pulls a roll sheet 1. And a roll sheet 1 is fractured on the basis of a perforation 21. The situation is shown in drawing 3 c.

** As for bottom driving roller 6b, after fracture supplies the roll sheet 1 which continued and fractured rotation to the down-stream manufacture means C. The situation is shown in drawing 3 d.

** In drawing 3 d, the point 23 of a roll sheet 1 is in the upstream from a sensor 8. Then, a sensor 8 sends the information which does not sense existence of a roll sheet 1 to a control means. A control means receives the information sensed from the sensor 8, when upper driving roller 2b is rotated and it comes to a sensor 8 until the point 23 of a roll sheet 1 comes to the location of a sensor 8, and it stops rotation of upper driving roller 2b. And it returns to the condition of drawing 3 a.

[0069] (Steamed towel machine)

[7] This invention is "a steamed towel machine which has the roll-sheet feeder style (the aforementioned ** and ** are included) and the manufacture means C which were explained until now, and the water spray means D."

[0070] ** "The manufacture means C" means the means which rolls the fractured roll sheet 1 and makes a steamed towel. As this manufacture means C, implementation of this invention is possible using the manufacture means C of various gestalten used from the former. The example shown in drawing 2 arranges the endless belt 25 on the surroundings of two rollers 24a and 24b attached free [rotation], and arranges the fixed belt 26 near [the] the outside. Here, the endless belt 25 is formed in the outside of these two rollers 24, and let the part rotated in order to roll a roll sheet 1 be the "winding roller 9" in this invention. And a roll sheet 1 is rolled in the clearance between this endless belt 25 and the fixed belt 26, and a steamed towel is manufactured.

[0071] ** "The water spray means D" is a means established when offering the damp steamed towel, and it is constituted by the tank 27 in which water is stored, and the nozzle 28 which gives water to a roll sheet 1. In addition, the location of this water spray means D in which it can carry out with the technique used for a certain steamed towel machine from the former, and a nozzle 28 is formed is also the same as usual.

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] General drawing of roll-sheet feeder style **

[Drawing 2] General drawing of the steamed towel machine which has roll-sheet feeder style **

[Drawing 3 a] The explanatory view of fracture of a roll sheet 1

[Drawing 3 b] The explanatory view of fracture of a roll sheet 1

[Drawing 3 c] The explanatory view of fracture of a roll sheet 1

[Drawing 3 d] The explanatory view of fracture of a roll sheet 1

[Drawing 4] The block diagram of a control means

[Drawing 5] General drawing of a steamed towel machine

[Drawing 6 a] The explanatory view of a roll sheet

[Drawing 6 b] The explanatory view of a roll sheet

[Drawing 6 c] The explanatory view of a roll sheet

[Drawing 7] The explanatory view 2 of a roll sheet

[Drawing 8] Explanation of the conventional technique

[Description of Notations]

A Roll electrode-holder section

A1 Roll axes

B Fracture section

C Manufacture means

D Water spray means

L1 Spacing (between the **** means 4 and the bottom supply means 6)

L2 Perforation spacing (perforations)

1 Roll Sheet

2 Upper Supply Means

The presser-foot section on 2a, 2b top driving roller

4 **** Means

4a migration clip section, the 4b fixed clip section

6 Bottom Supply Means

The presser-foot section under 6a, the bottom driving roller of 6b

8 Sensor
9 Winding Roller
11 Cutting Part
21 Perforation
23 Point
71 Infeed

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(71)出願人 593051157

前原 泰男

大阪市浪速区久保吉1丁目2番7号

(72)発明者 前原 泰男

大阪市浪速区久保吉1-2-7

(74)代理人 100072213

弁理士 辻本 一義 (外1名)

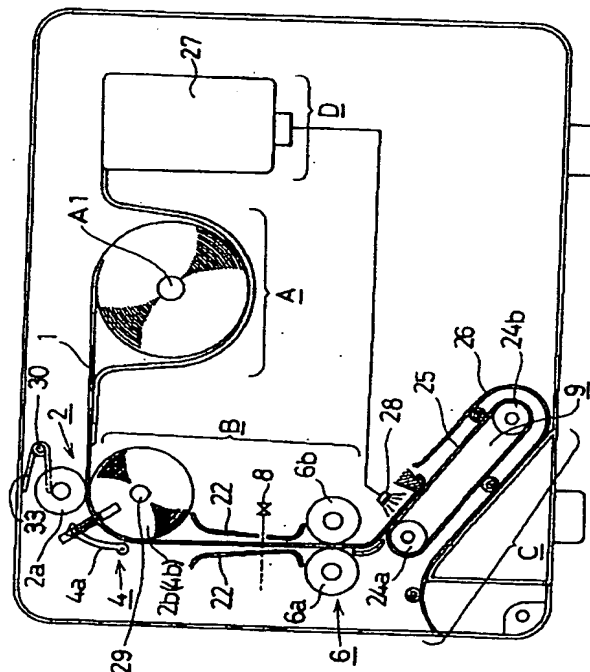
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(54)【発明の名称】 ロール紙供給機構及びおしぼり機

(57)【要約】

【課題】この発明の課題は、メンテナンスが容易で、且つ、その調節やロール紙1の詰め替えが容易なロール紙供給機構及びおしぼり機を提供することである。

【解決手段】そこで、この発明は、適宜な間隔でミシン目21を設けたロール紙1を用い、ロール紙1の供給時に、ミシン目間隔L2と略同一長さのロール紙1を供給した後、狭止手段4よりロール紙1の供給を止める一方で、下供給手段6はロール紙1の供給を続け、破断したロール紙1を供給することを特徴とするものである。



【特許請求の範囲】

【請求項1】 ロール紙1を收容し、このロール紙1の軸心であるロール軸A1を中心にロール紙1が回転可能なロールホルダー部Aと、このロールホルダー部の下流に位置し破断したロール紙1を供給する破断部Bを有するロール紙供給機構であって、

・前記破断部Bが、ロール紙1を下流に供給する上供給手段2と下供給手段6と、ロール紙1を間に挟み対向する二つの挟み部(4a, 4b)を有する狭止手段4を有し、

・前記狭止手段4がロール紙1に切り目を付ける適宜な刃部11を有し、

・ロール紙1の供給方向に対して、上供給手段2、狭止手段4、下供給手段6の順で配し、

・ロール紙1の供給時において、適宜な長さにロール紙1を供給した後、前記狭止手段4がロール紙1を挟み、その供給を止める一方で、前記下供給手段6がロール紙1の供給を続ける手段を有することを特徴とするもの。

【請求項2】 適宜な間隔でミシン目21を設けたロール紙1を收容し、このロール紙1の長手方向の軸であるロール軸A1を中心にロール紙1が回転可能なロールホルダー部Aと、所定寸法のロール紙1を供給する破断部Bを具備するロール紙供給機構であって、

・前記破断部Bが、ロール紙1を挟んで下流に供給する上供給手段2と下供給手段6と、ロール紙1を挟み対向する二つの挟み部(4a, 4b)を有する狭止手段4とを有し、

・ロール紙1の供給方向に対して、上供給手段2と狭止手段4の下流側に、一定の間隔をもって下供給手段6を配し、

・ロール紙1の供給時において、ロール紙1に設けられたミシン目21のミシン目間隔L2と略同一長さのロール紙1を供給した後、前記狭止手段4よりロール紙1の供給を止める一方で、下供給手段6はロール紙1の供給を続ける手段を有することを特徴とするもの。

【請求項3】 請求項2に記載したロール紙供給機構であって、上供給手段2と下供給手段6との間に、狭止手段4を設けることを特徴とするもの。

【請求項4】 請求項2または請求項3に記載したロール紙供給機構であって、

・上供給手段2はロール紙1を間に挟んで対向する上駆動ローラ2bと上押え部2aを有し、

・狭止手段4はロール紙1を間にして前記上駆動ローラ2bの反対側に移動挟み部4aを有し、

・前記移動挟み部4aが前記上駆動ローラ2bに接する位置と離れる位置との間を移動可能であって、上駆動ローラ2bにロール紙1を押えつけることでロール紙1を狭止することを特徴とするもの。

【請求項5】 請求項2ないし請求項4のいずれかに記載したロール紙供給機構であって、下供給手段6と狭止手段4の間にセンサー8を設け、かつ、このセンサー8

からの情報に基づきロール紙1の先端部23の位置調節を行うことを特徴とするもの。

【請求項6】 請求項2ないし請求項5のいずれかに記載したロール紙供給機構であって、ロール紙1に設けられたミシン目21のミシン目間隔L2と、狭止手段4と下供給手段6との間隔L1が、略同一であることを特徴とするもの。

【請求項7】 請求項1ないし請求項6のいずれかに記載したロール紙供給機構と製造手段Cと散水手段Dを有するおしぼり機。

【請求項8】 請求項7に記載したおしぼり機であって、製造手段Cにおける巻取ローラ9が下供給手段6における下駆動ローラ6bを兼用し、狭止手段4によってロール紙1の供給を止める一方で、巻取ローラ9によってロール紙1を供給し、破断させることを特徴とするもの。

【請求項9】 請求項7または請求項8に記載したおしぼり機であって、前記巻取ローラ9が正逆回転可能なことを特徴とするもの。

【請求項10】 コットン製のおしぼり用ロール紙1であって、幅方向にミシン目21が設けられており、かつ、ミシン目21の穴の大きさをロール紙1の中心を基準に略対称に変化させたことを特徴とするもの。

【請求項11】 コットン製のおしぼり用ロール紙1であって、ミシン目21の穴の大きさをロール紙1の中心を基準に略対称に変化させたものであって、かつ、ミシン目21の端部に切込み71を設けたもの。

【請求項12】 請求項2ないし請求項9のいずれかに記載したロール紙供給機構の狭止手段4と下供給手段6の間隔L1と、ミシン目21のミシン目間隔L2とが略同一であることを特徴とするおしぼり用のロール紙1。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は、ロール紙を供給するための機構及びおしぼりを製造する装置(おしぼり機)に関するものである。

【0002】

【従来の技術とその問題点】従来のおしぼり機においてロール紙を適宜な大きさに分割する技術としては、実用新案登録第3011567号がある。この明細書では、図8に示すように「カッティングブレード86」を用いてロール紙を適宜な大きさに切断していた。また、ロール紙を切断する機構としては実用新案登録第2018094号のように回転するローラの外側に回転ローラ刃を設けるものなどがあつた。

(問題点1)しかし、従来のように鋭い刃先を用いてロール紙を切断する機構では、一定期間の使用により刃先が丸くなってしまい、ロール紙を切断できなくなることがあつた。そのため、定期的に刃先を研ぐ等の定期的なメンテナンスが必要であつた。

(問題点2) また、ロール紙を切断するための刃先は常に鋭く研がれる必要があるため、ロール紙供給機構の調節やロール紙の詰め替え作業の際、作業者に怪我を負わせる危険があった。

【0003】

【発明が解決しようとする課題】そこで、この発明はメンテナンスが容易で、且つ、その調節やロール紙の詰め替えが容易なロール紙供給機構及びおしぼり機を提供することである。

【0004】

【課題を解決するための手段、実施形態及びその効果】この発明の実施形態としては、ミシン目を設けたロール紙を用いる形態と、ミシン目を設けない形態がある。そこで、ミシン目を設けないロール紙を用いる機構をロール紙供給機構①とし、ミシン目を設けたロール紙を用いる機構をロール紙供給機構②とする。

【0005】(★1. ロール紙供給機構①：ミシン目21なし)

[1] この発明は前記課題を解決するために、「ロール紙1を収容し、このロール紙1の軸心であるロール軸A1を中心にしてロール紙1が回転可能なロールホルダー部Aと、このロールホルダー部の下流に位置し破断したロール紙1を供給する破断部Bを有するロール紙供給機構であって、

- ・前記破断部Bが、ロール紙1を下流に供給する上供給手段2と下供給手段6と、ロール紙1を間に挟み対向する二つの挟み部(4a、4b)を有する狭止手段4を有し、

- ・前記狭止手段4がロール紙1に切り目を付ける適宜な刃部11を有し、

- ・ロール紙1の供給方向に対して、上供給手段2、狭止手段4、下供給手段6の順で配し、

- ・ロール紙1の供給時において、適宜な長さにロール紙1を供給した後、前記狭止手段4がロール紙1を挟み、その供給を止める一方で、前記下供給手段6がロール紙1の供給を続ける手段を有することを特徴とするもの」である。

【0006】(効果) この発明は、刃物を用いてロール紙1を切断するのではなく、適宜な長さを供給した後、狭止手段4に設けた刃部11でロール紙1に切り込みを設け、この切り込みを基点にロール紙1を破断させるものである。よって、これまでのおしぼり機のようにロール紙1を切断するための刃先を鋭く研磨しておく必要がなくメンテナンスが容易になる。また、刃先が丸まり、切断できなくなるといった不都合が生じない。

【0007】更に、破れやすいロール紙1のみならず、丈夫なロール紙1であっても切り込みを設けることで破断させ易くでき、これによりロール紙1を引っ張る役割をする下供給手段における下駆動ローラ6bの負担を低減することができる。鋭利な刃物を用いないためロール紙1の取り替え、前記メンテナンスなどが安全に行えるよ

うになる。

【0008】(構成) この発明の実施形態を図1を参照して説明する。発明に係るロール紙供給機構①は、ロール紙1を供給するロールホルダー部Aと、ロール紙1を破断する破断部Bにより構成される。

【0009】(1) ここで「ロールホルダー部A」とは、ロール紙1の軸心であるロール軸A1を中心に回転可能にロール紙1を収容する部分をいい、従来のファクシミリ供給装置、おしぼり機などで用いられている構成と同様のもので足りる。

【0010】そして、この発明において「ロール紙1」とは、ロール状に巻いた紙をいい、その材質や厚みなどに特に制限はない。具体的には、おしぼり用ロール紙(コットン製のものを含む)、キッチンペーパー、トイレットペーパーなどが該当する。そして、この発明であるロール紙供給機構に用いられるロール紙1としては、幅方向に裂けやすいように繊維の方向を揃える等の工夫がなされているものが望ましい。

【0011】(2) 「破断部B」とは、所定寸法に破断させたロール紙1を供給する部分をいい、前記ロールホルダー部Aより下流に位置する。そして、ロール紙1を下流に供給する上供給手段2と下供給手段6、ロール紙1の供給を強制的に停止する狭止手段4とによって構成される。

【0012】(2-1) 「上供給手段2」

「上供給手段2」は、ロール紙1を間に挟み対向する上押え部2aと上駆動ローラ2bを有し、この二つの部材によってロール紙1を適宜に挟み、上駆動ローラ2bが図1に示す方向に回転することでロール紙1を下流側に供給する機能を有するものである。そして、破断させた後のロール紙1を、下供給手段6に運ぶ機能も有するものである。

【0013】① 上押え部2aは、ロール紙1を上駆動ローラ2bに押さえつける役割を有するものである。この上押え部2aを上駆動ローラ2bに押さえつける手段としては、コイルバネや板バネを用いる形態で実施が可能である。

【0014】図1に示す、この実施形態における上押え部2aは、ローラの形状である。この上押え部2aの具体的な構成としては、ローラのみならず特開2000-139757に示される「押え部材23」のように駆動ローラの外形に対応した湾曲した面を有する板状の部材によっても実施可能である。

【0015】② 上駆動ローラ2bは、円柱状のローラであって、その側面がロール紙1と接するように配置される。そして、この上駆動ローラ2b自身が回転し側面の摩擦力を利用してロール紙1の供給を行う。この上駆動ローラ2bはモータの回転によって駆動力を得るものであるが、その形態としてはモータに直結しても歯車・ベルトを介してもよい。また、このモータの回転を制御することで上駆動ローラ2bの回転を制御するものである。

【0016】なお、この上駆動ローラ2b及び後述する下駆動ローラ6bはそれぞれモータによって制御されるものであるが、このモータ及びモータの制御手段については従来と同じであり、図面から省略する。そして、この上下の駆動ローラ(2b、6b)の制御手段はそれぞれ独立した構成であってもよいが、一つの装置で各駆動ローラを制御する形態でも実施が可能である。

【0017】③ この発明の実施としては、ロール紙1の判断時にこの上供給手段2においてロール紙1の供給を停止する形態がある。その停止手段としては、上駆動ローラ2bの回転を停止させる形態のほか、図1に示すように、この上押え部2aを支点12を介して後述する移動挟み部4aと連結させ、この移動挟み部4aを上下に移動させる形態である。

【0018】(2-2) 狭止手段4

狭止手段4は、前記上供給手段2より下流に位置し、ロール紙1を間に挟み対向する二つの挟み部(4a、4b)によって構成される。この挟み部4はロール紙1を挟む位置と開放する位置との間で任意に移動可能である。そして、この二つの部材によってロール紙1を挟み、ロール紙1の流れを止める役割を有するものである。

【0019】① 図1に示す実施形態では、上側の挟み部4が上下に移動可能であって、上に位置するときにロール紙1を開放し、下に位置するときにロール紙1を挟持するものである。この移動可能な挟み部を移動挟み部4a、動かない挟み部を固定挟み部4bとする。移動挟み部4aの移動を制御する構造としては、その一端にソレノイドを用いる。ソレノイドであれば、小さく簡易な装置でありながら、狭止と開放の操作の切り替えを容易に行える利点がある。また、ロール紙1を破断させるために十分な狭止力を確保できるものである。

【0020】② ロール紙1を挟む力の調節は電圧及び電流の調節で可能である。ソレノイドの種類としては、AC型のほかDC型、またキープ型で実施が可能である。

【0021】③ ソレノイドは、ソレノイドのプランジヤを移動挟み部4aに連結させることができる位置であればよく、取付け位置に特徴がない。そこで、ソレノイドは図面で省略する。また、支点12に正逆回転可能なモータを取付け、このモータの回転を制御して狭止手段4aを上下させる形態でも実施可能である。

【0022】④ そして、この発明は、狭止手段4における挟み部4に、ロール紙1に切り目を付けるのに適当な刃部11を設ける。図1では移動挟み部4aの先端であって、固定挟み部4bと接する位置である。

【0023】「切り目を付けるのに適当な刃部11」とは、従来のように、ロール紙1を幅方向に切断するための刃部ではなく、ロール紙1の一部だけを切るため(切り目を設けるため)の刃部11をいう。具体的には、ロール紙1の両端に2~3mm程度の切り目を設けるものが

望ましく、その構成としては、挟み部(4a、4b)の両端に幅2~10mm、高さが2mm~5mm程度の三角刃を設ける。また、ロール紙1が幅方向に裂けやすくなるようにロール紙1の表面に薄い切れ筋を設ける形態であってもよい。この刃部11を設けるのは、挟み部4aと4bのどちらに設けてもよい。

【0024】(2-3) 下供給手段6

前記狭止手段4の下流に下供給手段6を設ける。この下供給手段6は狭止手段4によってロール紙1の供給が止められたロール紙1を更に下流側に引っ張り、ロール紙1を破断させる役割を有するものである。その構成は図1に示すようにロール紙1を間に挟み対向する下押え部6aと下駆動ローラ6bにより構成される。この下押え部6aの形状は前記した上押え部2aと同様でよく、下押え部6aをローラの形態とする他、湾曲した面を有する板状の部材(「押え板」)によっても実施可能である。同様に、下駆動ローラ6bの形状も前記した上駆動ローラ2aと同様に円柱状のローラであり、モータを直接または、歯車などを介してその回転を制御する。

【0025】(3) ロール紙1の供給方向に対して、上流から上供給手段2、狭止手段4、下供給手段6の順で配する。

【0026】(4) 制御部

この発明の実施において、従来のおしぼり機と同様に駆動ローラ(2b、6b)の回転を制御する手段のほか、また、狭止手段4における挟み部(4a、4b)や上押え部2aなどの動きを制御する手段が必要である。そこで、この制御手段の具体的構成を説明する。図4は制御手段の構成を示すブロック図である。なお、制御手段の形状やその配置位置に特徴はないため、図1及び後述する図2などにおいて制御手段は省略する。

【0027】制御手段は、制御部41・入力部42・出力部43・記憶部44によって構成される。入力部42では駆動ローラ(2b、6b)の回転数や後述するセンサー8からの情報を制御部41に送る。記憶部44には、駆動ローラ(2b、6b)の回転を制御したり、狭止手段4を制御するプログラムと、後述するミシン目間隔L2のデータを記憶する。制御部41はCPUや一時的な記憶機能を有し、記憶部44に記憶された各種プログラムに従って上下の駆動ローラ(2b、6b)や狭止手段4を制御する指示を行う。出力部43は前記制御部41からの指示を各手段に送るものである。

【0028】なお、この発明における制御手段とは各手段(上・下供給手段2、6や狭止手段4、製造手段Cなど)、各部材の動き・機能を制御するもので、各手段ごとに独立した制御手段を有する形態でも実施可能である。そして、後述するロール紙供給機構②(ミシン目あり)においても、記憶部44に記憶されるプログラムは異なってもほぼ同様の構成で各手段・部材を制御することができる。

【0029】(5) 実施の流れ

このロール紙供給機構①による、破断したロール紙1の供給の流れを説明する。

① モータの回転により、上下の駆動ローラ2b、6bを回転させてロール紙1を下供給手段6より下流側まで供給する。

② おしぼり用に適当な長さを供給した後、ソレノイドに電圧をかけて、挟み部4aを降下させ、挟み部4bとでロール紙1を挟む。同時に、連結された上押え部2aが上駆動ローラ2bから離間し、上供給手段2によるロール紙1の供給が停止する。

③ 狭止手段4により挟まれたロール紙1は、挟み部4aの両端に設けられた刃部11により、その両端に切り目が設けられる。

④ 下供給手段6では、下駆動ローラ6bが回転を続けロール紙1を引っ張り続ける。ロール紙1は狭止手段4に挟まれているため、その両端に設けられたミシン目21を基点として破断する。

⑤ 下駆動ローラ6bはその後回転を続け、破断したロール紙1を更に下流の製造手段Cに供給する。挟み部4aは挟み部4bから離間し、上押え部2aは上駆動ローラ2bに当接する。上供給手段2は稼働を止め次のロール紙1の供給に備える。

⑥ 新しくロール紙1を供給する場合は、上駆動ローラ2bが回転し破断したロール紙1の先端を下供給手段6にまで送り、上記①に戻る。

【0030】この発明は、このようにして適宜な長さに破断させたロール紙1の提供を可能にするものである。そして、このロール紙供給機構の下流側に、おしぼり製造部Cを設けることで、おしぼり機に利用されるものである。

【0031】(6) なお、図1に示す符号の13はロール紙1を水平に移動させるための案内板であり、ロール紙1が垂直方向に供給される場合には不要な構成である。

【0032】(★2. ロール紙供給機構②：ミシン目21あり)

[2] また、この発明は、前記課題を解決するために、「適宜な間隔でミシン目21を設けたロール紙1を収容し、このロール紙1の長手方向の軸であるロール軸A1を中心にロール紙1が回転可能なロールホルダー部Aと、所定寸法のロール紙1を供給する破断部Bを具備するロール紙供給機構であって、

・前記破断部Bが、ロール紙1を挟んで下流に供給する上供給手段2と下供給手段6と、ロール紙1を挟み対向する二つの挟み部(4a、4b)を有する狭止手段4とを有し、

・ロール紙1の供給方向に対して、上供給手段2と狭止手段4の下流側に、一定の間隔をもって下供給手段6を配し、

・ロール紙1の供給時において、ロール紙1に設けられ

たミシン目21のミシン目間隔L2と略同一長さのロール紙1を供給した後、前記狭止手段4よりロール紙1の供給を止める一方で、下供給手段6はロール紙1の供給を続ける手段を有すること、を特徴とするもの」である。

【0033】(効果) この発明も、上記したロール紙供給機構①と同様に、刃物を用いないため、ロール紙1の取り替え、メンテナンスが安全に行える等の利点を有する。更に、この発明では、ロール紙1にミシン目21を設けることから前記ミシン目21のない形態より、ロール紙1の破断面の仕上がりが綺麗になる。これにより、このロール紙1からおしぼりを作成したときなど、利用者に綺麗な仕上がりのおしぼりを提供することができる。また、ミシン目21によってロール紙1が破断し易くなり、下駆動ローラ6bの負担が低減し、下駆動ローラ6bの故障率が低減、耐久年数が向上する。

【0034】(構成)

(1) このロール紙供給機構②を用いたおしぼり機を図2に示す。ここで、ロールホルダー部A、破断部Bにおける上供給手段2と下供給手段6は前記したロール紙供給機構①と同様の機能・構造で実施可能である。一方、この実施形態はロール紙1に設けたミシン目21を利用して破断させる。よって、破断部Bにおける狭止手段4の先端に刃部11は不要である。狭止手段4はロール紙1を挟み、その流れを止めることができる機能を有すれば足りる。

【0035】(2) この実施形態では、ミシン目21を設けたロール紙1を用いる。このミシン目21は、ロール紙1が破れやすいように幅方向に設ける(その具体的構成を図6、図7に示す)。ミシン目21が設けられる長手方向のミシン目の間隔(ミシン目間隔L2)は、破断したロール紙1の用途によって適宜に決められる。このロール紙1がおしぼりに用いられるのであれば、おしぼり用として適宜な約10～25cmの間隔とする。また、ロール紙が紙タオルとして用いられるのであれば、紙タオルとして適宜な約20～40cmの間隔とする。

【0036】ミシン目21の穴の形状や幅方向に設けられる穴の間隔は、ロール紙1の素材や強度などを考慮して、下供給手段6が引っ張ったときに適宜に破断するように設定する。その具体的構成は後述する。

【0037】[3]配置順

前記したロール紙供給機構②の実施形態において、狭止手段4は下供給手段6より上流側に位置すればよい。しかし、この発明の望ましい実施形態は、「前記したロール紙供給機構であって、上供給手段2と下供給手段6との間に、狭止手段4を設けることを特徴とするもの」である。

【0038】この発明は、下供給手段6によってロール紙1を引っ張り破断させるものである。そのため、破断したときのロール紙1の先端は必ず狭止手段4と下供給手段6との間に存在する。そして、破断した後のロール

紙 1 は上供給手段 2 によって下供給手段 6 にまで送られるものである。

【0039】ここで、破断後のロール紙 1 の先端部 23 が上供給手段 2 より上流側にあるのでは上供給手段 2 からロール紙 1 を送ることができなくなってしまう。そこで、この発明では、上供給手段 2 と下供給手段 6 との間に狭止手段 4 を設けることで、そのような事態を回避することができる。

【0040】[4] この発明は、前記した上供給手段 2 と狭止手段 4 が独立した形態で実施可能である。しかし、部品点数を少なくする観点から、上供給手段 2 における上駆動ローラ 2b に狭止手段 4 としての役割を兼用させる形態でも実施可能である。そこで、この発明の望ましい実施形態は、「前記したロール紙供給機構であって、

- ・上供給手段 2 はロール紙 1 を間に挟んで対向する上駆動ローラ 2b と上押え部 2a を有し、
- ・狭止手段 4 はロール紙 1 を間にして前記上駆動ローラ 2b の反対側に移動挟み部 4a を有し、
- ・前記移動挟み部 4a が前記上駆動ローラ 2b に接する位置と離れる位置との間を移動可能であって、上駆動ローラ 2b にロール紙 1 を押えつけることでロール紙 1 を狭止することを特徴とするもの」である。

【0041】これにより、破断部 B の部品点数を少なくし、製造コストの低減、コンパクト化を図ることが可能となる。この実施形態を図 2、図 3 に示す。図中の符号 2b は上供給手段 2 における上駆動ローラ 2b であり、狭止手段 4 における固定挟み部 4b である。

【0042】[5] この発明の実施には、ロール紙 1 を供給する長さを調節する必要がある。その調節手段としては、上下の駆動ローラ (2b、6b) の回転数を制御する形態である。その他、精度よく制御する形態としてセンサー 8 を用いてロール紙 1 の先端部 23 の位置を常に把握する形態でも実施可能である。そこで、この発明の望ましい実施形態としては、「前記したロール紙供給機構であって、下供給手段 6 と狭止手段 4 の間にセンサー 8 を設け、かつ、このセンサー 8 からの情報に基づきロール紙 1 の先端部 23 の位置調節を行うことを特徴とするもの」である。

【0043】これにより、常に同じ状態からロール紙 1 を供給させることが可能になり、ミシン目 21 を狭止手段 4 と下供給手段 6 の間に配置することが容易になる。

【0044】この「センサー 8」とは、ロール紙 1 の供給路に向けて設定され、センサー 8 の前にロール紙 1 が存在するの否かを確認する機能を有するものである。このセンサー 8 は上記したようにロール紙 1 の存在を確認できるものであればよく、その形態に特に制限はない。図 2 では、供給路に向けてセンサー 8 を配置したものであり、センサー 8 前のロール紙 1 の有無を光学的手法 (レーザー光、赤外線など) により確認するものであ

る。破断したロール紙 1 の先端は必ず下供給手段 6 と狭止手段 4 の間に存在する。そこで、このセンサー 8 は下供給手段 6 と狭止手段 4 の間に設ける。

【0045】そして、この発明はセンサー 8 からの情報に基づきロール紙 1 の先端部 23 の位置調節を行う。その位置調節の手段としては、センサー 8 からの情報に基づいて、上駆動ローラ 2b の回転を制御する。制御手段の構成を図 4 に示す。センサー 8 から情報は入力部 42 を介して制御部 41 に送られ、この情報に基づいてプログラムが稼動し、上駆動ローラ 2b の回転数・回転時間などを決定する。そして、この回転数などは出力部 43 を介して上駆動ローラ 2b のモータに送られ、その情報に基づいて上駆動ローラ 2b の回転を制御する。

【0046】[6] この発明はミシン目 21 のミシン目間隔 L2 だけロール紙 1 を供給し、その後破断させるものである。ここで、ミシン目間隔 L2 が狭止手段 4 と下供給手段 6 との間隔 L1 よりあまりに短いと、狭止手段 4 と下供給手段 6 の間にミシン目 21 が二つ以上存在する状態が生じてしまう。このような状況では、どちらのミシン目 21 で破断するかわからず、上流側のミシン目 21 で破断した場合は、ミシン目 21 二つ分のロール紙 1 が供給される事態になってしまい望ましくない。一方、ミシン目間隔 L2 が狭止手段 4 と下供給手段 6 との間隔 L1 よりあまりに大きな場合、常にミシン目 21 の間隔分だけ正確に供給しなければならず、その供給する長さに違いが生ずると狭止手段 4 と下供給手段 6 との間にミシン目 21 が存在しない状況が生じてしまう。これではロール紙 1 を破断させることができない。

【0047】そこで、この発明の望ましい実施形態は「前記したロール紙供給機構であって、ロール紙 1 に設けられたミシン目 21 のミシン目間隔 L2 と、狭止手段 4 と下供給手段 6 との間隔 L1 が、略同一であることを特徴とするもの」である。

【0048】これにより、供給するロール紙 1 の長さに多少の変化があったとしても、狭止手段 4 と下供給手段 6 との間に常にミシン目 21 が存在する状況を生じさせることができ、ロール紙 1 を供給する精度の許容範囲が広がる。

【0049】(★実施例) ミシン目 21 を設けたロール紙 1 を用いるロール紙供給機構②、及び、この供給機構を用いたおしぼり機の実施例を説明する。この発明はミシン目 21 を設けたロール紙 1 を破断させるものであり、前記したロール紙供給機構①とその構成が異なる。しかし、上供給手段 2、狭止手段 4、下供給手段 6 のそれぞれについて共通する機能をもって実施が可能であることから、前記ロール紙供給機構①の記載も参照して実施例を説明する。

【0050】この発明をおしぼり機に用いた実施例を図 2 に示す。図に示すように、このロール紙供給機構②、おしぼり機もロールホルダー部 A と破断部 B によって構

成され、その下流側に製造手段C（ノズル28を含む）を設けたものである。また、おしぼりを適宜に湿らせるための散水手段Dを設ける。散水手段Dにおけるノズル28は製造手段Cの近傍、直上に設ける。この実施形態では、ロール紙1は上駆動ローラ2bにおいて直角に曲がる。ロール紙1の供給路は、ロール紙供給機構①で説明したように水平方向のみならずこの実施形態のように途中で折れ曲がる形態でも実施可能であり、ロール紙供給機構が設けられる機械の形状に合わせて適宜に変更することができる。なお、ロールホルダー部Aは前記した説明と同様である。

【0051】また、この発明は狹止手段4と下供給手段6との間にセンサー8を設ける。そして、製造手段C、および、散水手段Dについては従来のおしぼり機の構成をそのまま用いることで実施可能である。

【0052】（破断部Bの説明）破断部Bは、上供給手段2と狹止手段4と下供給手段6によって構成される。この破断部Bを図2、図3a～3dに示す。

【0053】（1） 上供給手段2

上供給手段2は図3に示す上押え部2aと上駆動ローラ2bによって構成される。上押え部2aは、ロール紙1を適宜に上駆動ローラ2bに押える機能を有する部材であり、ロール紙供給機構①と同様にローラの形状とする。そして、上押え部2aがロール紙1を上駆動ローラ2bに押さえる手段に特に制限はなく、この実施形態では図2に示すように支点30で支えられたバネ33を用いる。上駆動ローラ2bは、前記したロール紙供給機構①と同様に制御手段によってその回転数などが制御される。

【0054】（2） 狹止手段4

狹止手段4は、ロール紙1を間に対向する移動挟み部4aと固定挟み部4bによって構成される。この実施例では、上駆動ローラ2bが固定挟み部4bを兼用し、移動挟み部4aの先端42を上駆動ローラ2bに押さえつけることでロール紙1を狹止する。移動挟み部4aは図3に示す板状とする。

【0055】なお、図1に示した形態のように、上押え部2aと移動挟み部4aとを支点12を介して連結させ、狹止手段4がロール紙1を挟む状態で、上押え部2aが上駆動ローラ2bから離間する形態でも実施は可能である。

【0056】この移動挟み部4aの動きを制御する手段を説明する。図3a～dは狹止手段4の拡大図であって、移動挟み部4aの動きを示した図である。移動挟み部4aの他端にはソレノイド32を設け、プランジヤーの動きに合わせて移動挟み部4aが支点31を中心に揺動する。

① 図3aはソレノイドが開いた状態であって、ロール紙1を供給している状態図である。この場合移動挟み部4aと上駆動ローラ2bの間に隙間がある。

② 図3bは移動挟み部4aがロール紙1を挟んだ状態である。この状態は、制御手段によりソレノイド32に電圧を掛けて移動挟み部4aを上駆動ローラ2b（固定挟み部4

b）に押えつけたものである。

【0057】なお、このロール紙1を挟むときに上駆動ローラ2bの回転の有無は問わない。しかし、より強固にロール紙1を狹止する点から上駆動ローラ2bは回転を停止する形態が望ましい。そのために制御手段は、前記した移動挟み部4aの動きに連動して上駆動ローラ2bの回転を止める。

【0058】図2に示す符号22は、案内板であり、破断したロール紙1の先端が下供給手段6に上手く挟まれるように、下駆動ローラ6bと下押え部6aとの間にロール紙1の先端を導く役割をする。

【0059】（3） 下供給手段6

前記狹止手段4の下流には下供給手段6を設ける。この下供給手段6はロール紙1を間に対向する二つのローラである下押え部6aと下駆動ローラ6bにより構成される。

【0060】そして、狹止手段4と下供給手段6との間隔があまりに狭くては、ミシン目21の位置の調整、すなわち駆動ローラの制御が困難になる。そこで、下供給手段6を設ける位置は、狹止手段4の下流側約3～30cmの範囲が望ましく、この実施形態では、狹止手段4から20cm下流側とする。更に、この破断部Bをコンパクトにしつつ、かつ、この狹止手段4と下供給手段6との間をできるだけ広くする観点から、狹止手段4は下供給手段6よりも上供給手段2に近いところに設ける。

【0061】（4） ミシン目間隔L2

更に、狹止手段4と下供給手段6との間にミシン目21が存在しないといった事態を回避する観点から、この狹止手段4と下供給手段6の間隔L1とミシン目間隔L2を略同一とする。

【0062】（5） センサー8

また、この発明は狹止手段4と下供給手段6との間にセンサー8を設ける。図2では、供給路に向けてセンサー8を配置したものであり、センサー8前のロール紙1の有無を赤外線により確認する。そして、この発明はセンサー8からの情報に基づき上駆動ローラ2bを制御する。制御手段の構成は前記したとおりである。

【0063】センサー8に基づく制御形態としては、以下の形態が挙げられる。

【0064】（5-1） 位置調節A

この調節形態は、破断したロール紙1の供給が終わったとき、直ぐにロール紙1の先端部23の位置を調べ、位置調節を行うものである。なお、ロール紙1の先端部は符号23として示す。

① センサー8より上流側でロール紙1が破断した場合この場合、ロール紙1の先端部23はセンサー8より上流側に位置している。よって、センサー8の前にロール紙1は存在しない。そこで、センサー8にロール紙1が届くまで上駆動ローラ2bを回転させる。そして、センサー8にロール紙1の先端部23が届いたとき、センサー8はロール紙1を感知し、上駆動ローラ2bの回転を止め、次

のロール紙 1 の供給に待機する。

② 一方、センサー 8 より下流側でロール紙 1 が破断した場合

この場合、センサー 8 はその前にロール紙 1 があることを感知する。よって、上駆動ローラ 2b に回転する指示は与えず、次のロール紙 1 の供給まで待機する。

③ また、センサー 8 より下流側でロール紙 1 が破断した場合

上駆動ローラ 2b に逆回転する指示を与え、センサー 8 がロール紙 1 を感知しなくなるまでロール紙 1 を引き戻す。

【0065】そして、位置調節としては、上記①と③の組み合わせであれば、常にロール紙 1 の先端がセンサー 8 付近に存在することとなり、次のロール紙 1 の供給量の調整（駆動ローラの回転の調節）が容易になる利点がある。

【0066】この実施形態は、「センサー 8 からの情報に基づき上駆動ローラ 2b を制御し、ロール紙 1 の破断後、ロール紙 1 の先端部 23 をセンサー 8 付近に位置するように制御することを特徴とするもの」である。

【0067】(5-2) 位置調節 B

この調節の形態は、破断したロール紙 1 の供給が終わったとき、どの位置にロール紙 1 の先端部 23 が存在しても位置調節は行わない。そして、次のロール紙 1 の供給指示が行われたときに、まず、上記した位置調節を行い、その後ロール紙 1 の供給を行う形態である。

【0068】(6) 供給の流れ

次に、ミシン目 21 で判断されたロール紙 1 が供給される様子を、図 3 a～d を用いて説明する。

① ロール紙 1 にはミシン目 21 が設けられている。そして、開始前の破断部 B とロール紙 1 との位置を図 3 a に示す。ロール紙 1 の先端部 23 は挟止手段 4 と下供給手段 6 との間であって、センサー 8 の位置に止められている。なお、ロール紙 1 に設けられたミシン目 21 のミシン目間隔 L2 は予め制御手段に記憶させておき、ロール紙 1 を供給する指示があったときは、このミシン目 21 の間隔分だけ上駆動ローラ 2a を回転させロール紙 1 を供給する。

② 外部からのスタートの指示を受けて、上駆動ローラ 2b と下駆動ローラ 6b が回転を始める。そして、上駆動ローラ 2b の回転によりロール紙 1 の先端は下供給手段 6 に届けられる。ロール紙 1 の先端部 23 が下供給手段 6 に届いた後は、下供給手段 6 によってもロール紙 1 は下流側に送られる。

③ 制御手段では、上駆動ローラ 2b の回転数からどの程度ロール紙 1 を供給したのかを認知する。そして、ミシン目間隔 L2 と略同一長さのロール紙 1 を供給したときに、挟止手段 4 を作動させる（移動挟み部 4a に設けたソレノイド 32 を稼働させる）。

④ 挟止手段 4 を作動させた状態を図 3 b に示す。ソレ

ノイドにより移動挟み部 4a は上駆動ローラ 2b に押さえつけられる。そして、制御手段は上駆動ローラ 2b の回転を止める。

⑤ 下供給手段 6 では、下駆動ローラ 6b が回転を続け、ロール紙 1 を引っ張る。そして、ミシン目 21 を基点にロール紙 1 は破断する。その様子を図 3 c に示す。

⑥ 破断後も下駆動ローラ 6b は回転を続け、破断したロール紙 1 を下流の製造手段 C へ供給する。その様子を図 3 d に示す。

⑦ 図 3 d においてロール紙 1 の先端部 23 はセンサー 8 より上流側にある。そこで、センサー 8 はロール紙 1 の存在を感知しない情報を制御手段に送る。制御手段はロール紙 1 の先端部 23 がセンサー 8 の位置にくるまで上駆動ローラ 2b を回転させ、センサー 8 に来たときにセンサー 8 から感知した情報を受けとり、上駆動ローラ 2b の回転を止める。そして、図 3 a の状態に戻る。

【0069】（おしぼり機）

【7】この発明は「これまで説明したロール紙供給機構（前記①と②を含む）と製造手段 C と散水手段 D を有するおしぼり機」である。

【0070】①「製造手段 C」とは、破断されたロール紙 1 を巻いておしぼりを作る手段をいう。この製造手段 C としては、従来から用いられている様々な形態の製造手段 C を用いてこの発明の実施が可能である。図 2 に示す実施例は、回転自在に取付けられた二つのローラ 24 a、24b の周りに無端ベルト 25 を配し、その外側近傍に固定ベルト 26 を配するものである。ここで、この二つのローラ 24 の外側に無端ベルト 25 を設け、ロール紙 1 を巻くために回転する部分を、この発明における「巻取ローラ 9」とする。そして、この無端ベルト 25 と固定ベルト 26 との間でロール紙 1 が巻かれおしぼりが製造される。

【0071】②「散水手段 D」とは、湿ったおしぼりを提供する場合に設けられる手段であり、水を蓄えるタンク 27 とロール紙 1 に水を与えるノズル 28 によって構成される。なお、この散水手段 D は、従来からあるおしぼり機に用いられている技術をもって実施可能であり、ノズル 28 を設ける位置も従来と同様である。

【0072】（効果）これにより、これまで説明したロール紙供給機構の効果である、メンテナンスが容易であり、かつ、ロール紙 1 の交換などが容易なおしぼり機を提供することができる。

【0073】（構成）ロール紙供給機構としては、これまで説明したロール紙供給機構①のほか、ロール紙供給機構②を用いて実施可能である。ここでロール紙供給機構①であれば、ロール紙 1 の長さを変更したおしぼりを提供できる利点がある。一方、ロール紙供給機構②であれば、常に同じ長さのおしぼりであって、その破断面がきれいなおしぼりを提供することができる。

【0074】（★4. その他の実施形態）この発明におけるおしぼり機としては、製造手段 C における「巻取ロ

ーラ 9」に下供給手段 6 における下駆動ローラ 6b を兼用させる形態で実施が可能である。

【0075】[8] この発明の実施形態は、「前記おしぼり機であって、製造手段 C における巻取ローラ 9 が下供給手段 6 における下駆動ローラ 6b を兼用し、狭止手段 4 によってロール紙 1 の供給を止める一方で、巻取ローラ 9 によってロール紙 1 を供給し、破断させることを特徴とするもの」である。

【0076】このように、巻取ローラ 9 が下駆動ローラ 6b を兼用することで、構造が簡略化し、おしぼり機のコンパクト化、部品点数の低減によるメンテナンスの容易化と製造コストの低減を図ることが可能となる。

【0077】この「巻取ローラ 9 が下駆動ローラ 6b を兼用する」形態を図 5 に示す。図 5 に示す実施形態では、狭止手段 4 の下流側に図 2 に示すような下供給手段 6 を設けずに、製造手段 C を設け、この製造手段 C に下供給手段 6 を兼用させる形態である。図 5 に示す実施形態では、製造手段 C における巻取ローラ 9 が下駆動ローラ 6b を兼用する。そして、ロール紙 1 と巻取ローラ 9 が接する位置に下押え部 6a を配置する。これにより、狭止手段 4 によってロール紙 1 を挟み、その供給を止める一方で、おしぼりを巻くために巻取ローラ 9 を回転させると、ロール紙 1 を引っ張ることとなり、ロール紙 1 を破断させることが可能になる。

【0078】そして、この実施形態においてもロール紙 1 の位置を制御する観点から、狭止手段 4 と下押え部 6a との間にセンサー 8 を設け、このセンサー 8 からの情報に基づき上駆動ローラ 2b を制御する。なお、この実施形態では、ロール紙 1 を巻きやすくするために、この巻取ローラ 9 と反対向きの回転をするベルト機構 41 を巻取ローラ 9 の右上に設ける。

【0079】[9] 更に、この発明の望ましい実施形態は、「前記おしぼり機であって、前記巻取ローラ 9 が正逆回転可能なことを特徴とするもの」である。これにより、ロール紙 1 を巻くための方向（図では時計回り）であれば、巻いたおしぼりが排出される。一方、巻取ローラ 9 が逆方向の回転（図では反時計回り）であれば、ロール紙 1 は巻かれることなく、ストレートなロール紙 1 が排出される。これによって、これまで説明したおしぼり機としての効果に加えて、更に、巻いていないロール紙 1 が欲しいと望む利用者のニーズに応えることができる。この実施形態では、下押え部 6a をおしぼり巻き側（時計回り側）だけでなく、ストレート側（反時計回り側）にも設ける（図 4 では 6a' と示す）。そして、巻取ローラ 9 の回転方向を正逆可能にする手段としては、巻取ローラ 9 を駆動させるモータに逆回転可能なモータを用い、このモータを外部から入力された指示に基づき、制御手段がその回転を制御する。

【0080】そして、おしぼりが排出される排出部 C1（巻取ローラ 9 の左側）に、断面が略三角の排出部材

C2 を設け、巻取りローラ 9 が反時計回りした場合に流れてくるロール紙 1 をおしぼり機の外部に排出する。

【0081】（★5. 上供給手段 2 と狭止手段 4 との一体化）また、部品点数を減らすことを考えると、この狭止手段 4 と上供給手段 2 を一体化した形態でもこの発明の実施は可能である。その形態としては、図 2 に示す上押え部 2a が存在せず、移動挟み部 4a が上押え部 2a の役割を果たす形態である（名称は問わず、上押え部 2a が移動挟み部 4a の役割を果たす形態も可）。

【0082】その実施形態としては、まず、移動挟み部 4a は適宜な力でロール紙 1 を押えることで上押え部 2a としての機能を有する。そして、ロール紙 1 を破断させるときに上駆動ローラ 2b の回転を止めると同時に、より強い力でロール紙 1 を上駆動ローラ 2b に押えつけ、ロール紙 1 が下供給手段 6 に引っ張られるのに対抗する。

【0083】その構成としては、図 3 に示す支点 31 にモータを設け、ロール紙 1 を供給するときは弱い駆動力を与える。これによりロール紙 1 を適宜な力で押える。一方、ロール紙 1 を狭止し、破断させるときは、電圧を高めて強い駆動力を与え、より強い力でロール紙 1 を押えるものである。

【0084】また、2種類のソレノイドを用いる形態でも実施可能である。その構成としてはブランジャーの突出が大きなものと小さなソレノイドを移動挟み部 4a に配する。そして、ロール紙 1 を供給する場合にはブランジャーの突出の小さなものを用いて移動挟み部 4a を制御する。そして、ロール紙 1 を挟む時には突出の大きな方のソレノイドを用いて移動挟み部 4a を強く上駆動ローラ 2b（固定挟み部 4b）に押えつけるものである。

【0085】この実施形態の構成は、「上供給手段 2 は上駆動ローラ 2b と上押え部 2a を有し、狭止手段 4 はロール紙 1 を間に対向する移動挟み部 4a と固定挟み部 4b を有する。そして、この挟み部 4a が上押え部 2a を兼用し、移動挟み部 4a は上駆動ローラ 2b にロール紙 1 を押えつけることでロール紙 1 を供給する。更に、上駆動ローラ 2b が固定挟み部 4b を兼用し、移動挟み部 4a は上駆動ローラ 2b にロール紙 1 をより強い力で押えつけることでロール紙 1 を狭止することを特徴とする。以上の構成のロール紙供給機構」である。

【0086】（ロール紙）

[10] この発明は破断したロール紙 1 からおしぼりを提供する。ここで、ロール紙 1 のミシン目 21 の左右のいずれか一方から破断が始まったのでは、ロール紙 1 が供給路の中で傾いてしまう。そして、ロール紙 1 が傾いてしまうと、製造手段 C で巻かれたおしぼりの形が整わなくなる。よって、ミシン目 21 の破断が始まる位置は、ロール紙 1 の中心もしくは、中心に対して左右対称に破断する形態が望ましい。そこで、この発明を実施するためのロール紙 1 としては、「コットン製のおしぼり用ロール紙 1 であって、幅方向にミシン目 21 が設けられてお

り、かつ、ミシン目21の穴の大きさをロール紙1の中心を基準に略対称に変化させたことを特徴とするもの」である。そして、適宜な強度を保つためにこの発明に用いられるロール紙1は二つ折のものが望ましい。

【0087】ここで、ロール紙1の「中心を基準に略対称に変化させる」とは、図6に示す以下の形態などである。

① 図6a：ロール紙1の中心に大きなミシン目21aを設け、その他のミシン目21bは小さなものとする形態である。

② 図6b：中心付近に大きなミシン目21aを設け、中心から幅方向に広がるにつれて、ミシン目21の大きさを小さくする形態である。

【0088】この①、②のミシン目21の形態は、中心部のミシン目21aが最初に破断し、その破断が左右に広がるものである。

③ 図6c：ロール紙1の左右に同じ大きさのミシン目21cを設け、中心に向けてミシン目21dの大きさを小さくしていく形態である。また、ロール紙1の左右に同じ大きさのミシン目21cを設け中心付近のミシン目21dを小さくする形態でもよい。この形態は、左右のミシン目21cがほぼ同時に破断し、その破断が中心に進行する形態である。

【0089】[11] また、望ましいロール紙1としては、「コットン製のおしぼり用ロール紙1であって、幅方向にミシン目21が設けられており、かつ、ミシン目21の端部に切込み71を設けたもの」である。

【0090】これにより、これまで述べた効果に加え、この切り込みを基点にロール紙1の破断が開始するので、ロール紙1を引っ張る役割の下駆動ローラ6bの負担が低減する。この実施形態を図7に示す。ミシン目21のほかに、その両端に切込み71を設けることでロール紙1の両端は更に破断しやすくなり、下供給手段6の負担が低減するものである。

【0091】(11-1) また、望ましいロール紙1は「ミシン目21の穴の大きさをロール紙1の中心を基準に略対称に変化させたものであって、かつ、ミシン目21の端部に切込み71を設けたもの」である。この形態であれば、上記した(1)と(2)の効果を双方有するロール紙を提供することができる。

【0092】[12] また、望ましいロール紙1は「ミ

シン目21を設けたロール紙1を用いるロール紙供給機構②の狭止手段4と下供給手段6の間隔L1と、ミシン目21のミシン目間隔L2とが略同一であることを特徴とするもの」である。これにより、前記間隔L1にミシン目21が存在しない事態を回避することができる。

【図面の簡単な説明】

【図1】 ロール紙供給機構①の全体図

【図2】 ロール紙供給機構②を有するおしぼり機の全体図

【図3a】 ロール紙1の破断の説明図

【図3b】 ロール紙1の破断の説明図

【図3c】 ロール紙1の破断の説明図

【図3d】 ロール紙1の破断の説明図

【図4】 制御手段の構成図

【図5】 おしぼり機の全体図

【図6a】 ロール紙の説明図

【図6b】 ロール紙の説明図

【図6c】 ロール紙の説明図

【図7】 ロール紙の説明図2

【図8】 従来技術の説明

【符号の説明】

A ロールホルダー部

A1 ロール軸

B 破断部

C 製造手段

D 散水手段

L1 間隔（狭止手段4と下供給手段6との間）

L2 ミシン目間隔（ミシン目同士）

1 ロール紙

2 上供給手段

2a上押え部、2b上駆動ローラ

4 狭止手段

4a移動挟み部、4b固定挟み部

6 下供給手段

6a下押え部、6b下駆動ローラ

8 センサー

9 巻取ローラ

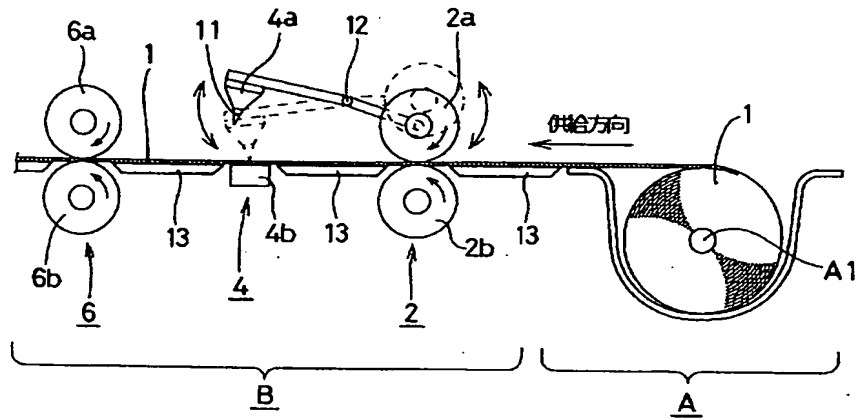
11 刃部

21 ミシン目

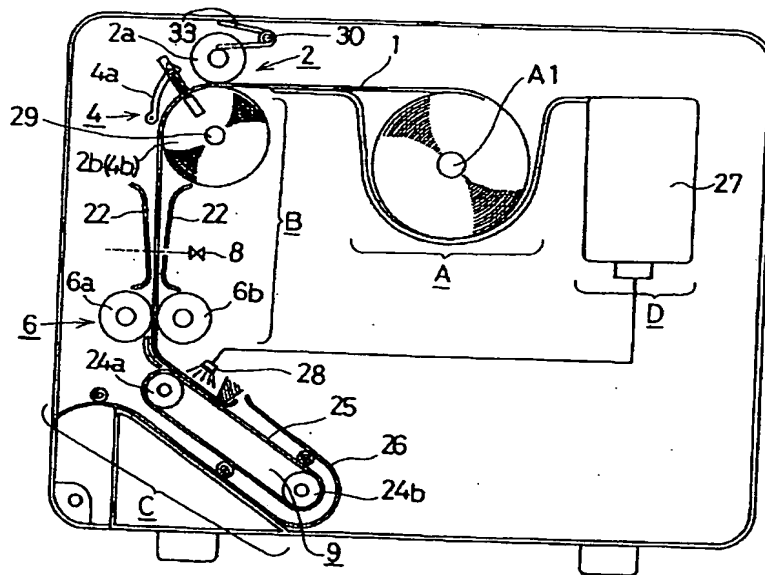
23 先端部

71 切込み

【図1】

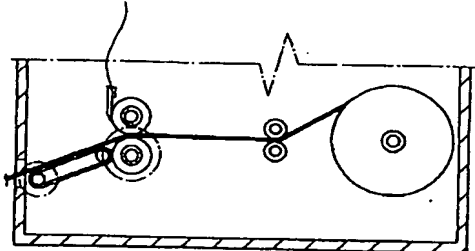


【図2】

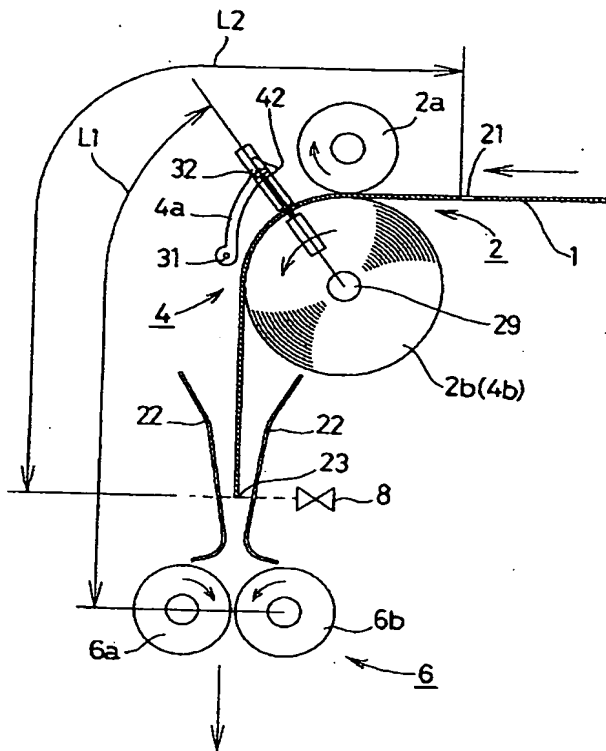


【図8】

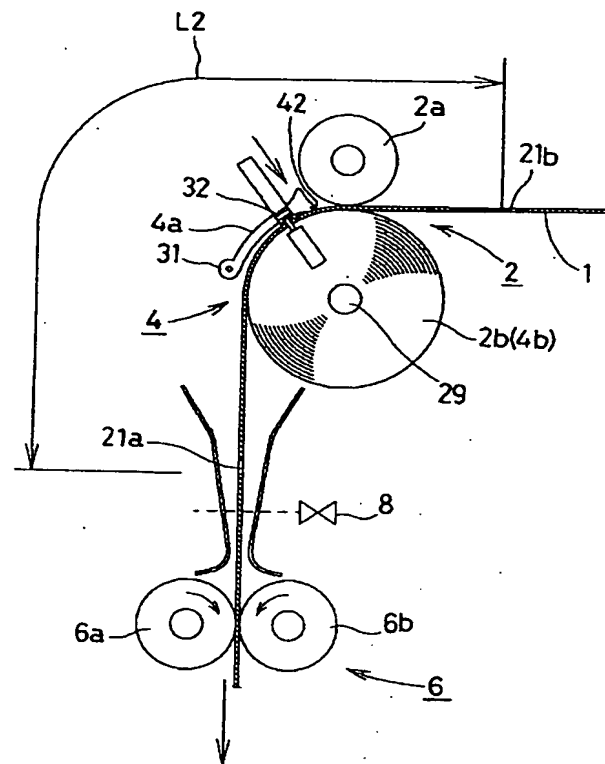
カッティングブレード 8 6



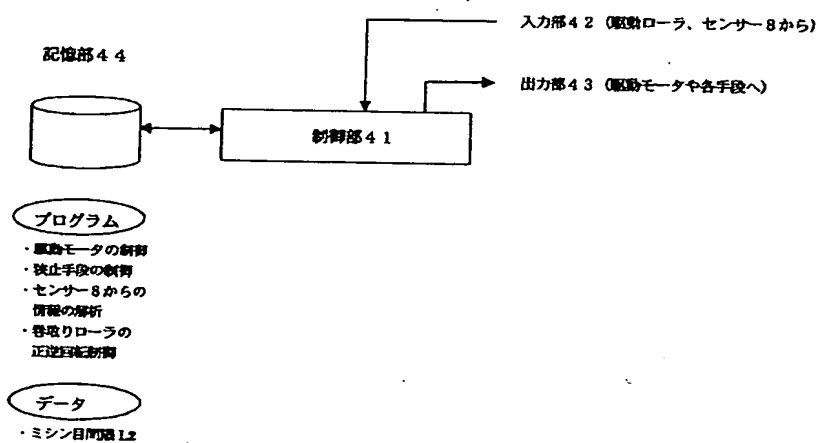
【図3a】



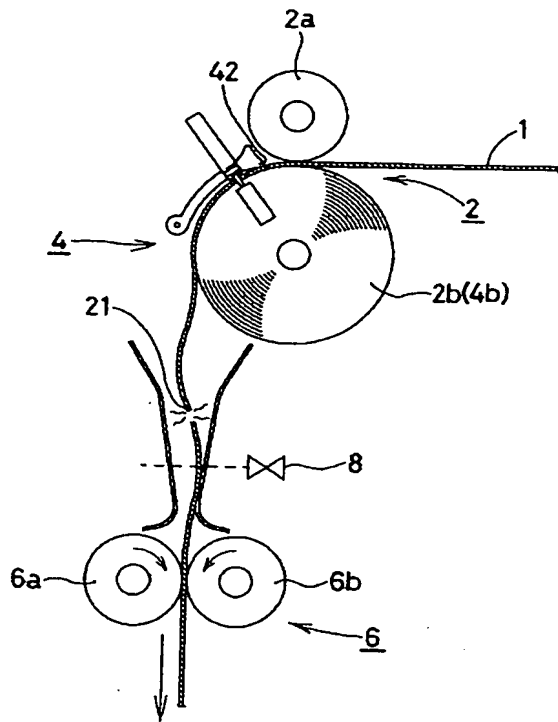
【図3b】



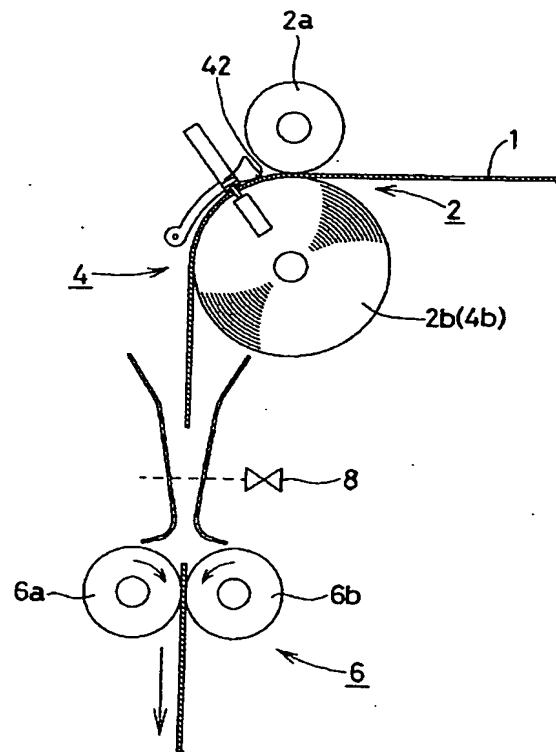
【図4】



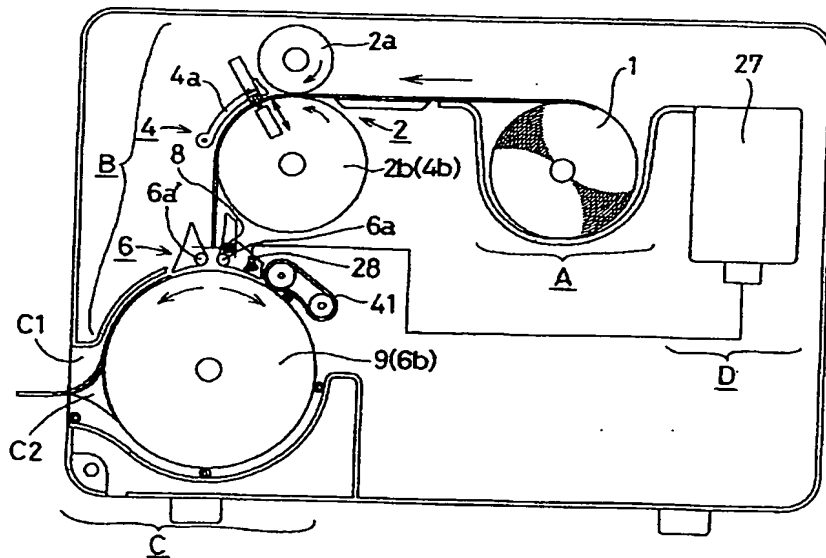
【図 3 c】



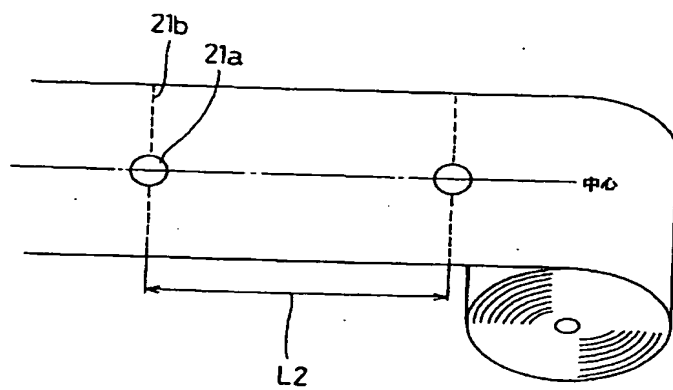
【図 3 d】



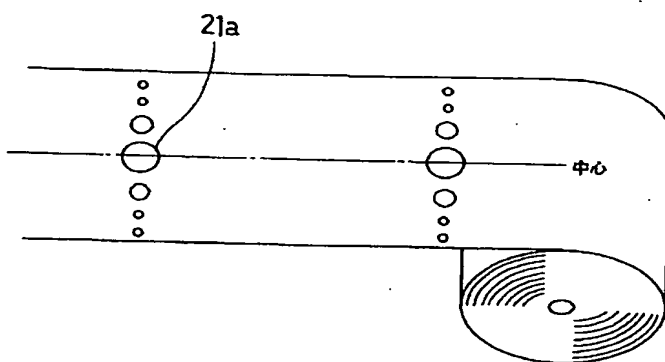
【図 5】



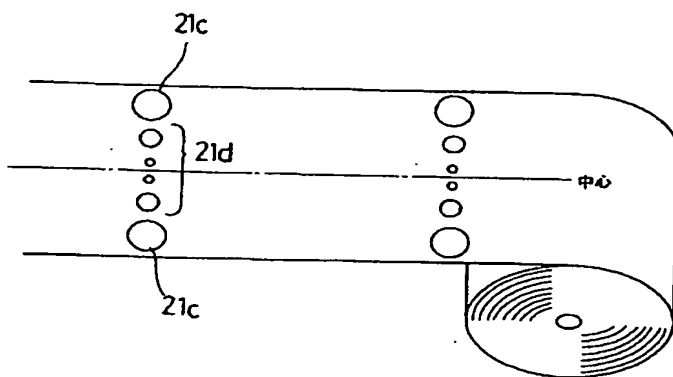
【図 6 a】



【図 6 b】



【図 6 c】



【図 7】

